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An engineer suggests how to raise the **hotbox set-off** mileage rate . . . . . p. 23

May 11, 1964

RAILWAY AGE WEEKLY

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Perlman of the NYC: Revolution through research p. 14

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EXCLUSIVE INTERVIEW WITH NYC PRESIDENT

Perlman: Revolution through research

A behind-the-scenes look at an exciting—but little-known—facet of railroading. **p.14**

Rail profits rise sharply, but—

First quarter earnings show a marked improvement over last year's. But they're not what they should be **p.11**

MP uses solid-state signal controls

The new interlocking-control system was installed for about two-thirds the cost of multi-conductor cable. **p.13**

How to improve the hotbox situation

Here's an engineer's program designed to raise the hotbox set-off rate to over 2,000,000 miles **p.23**

Halting 'the great train robbery'

Auditors are using sampling techniques and computers to ferret out fraud and embezzlement on railroads **p.32**

The Action Page—Transportation Week . . . why?

National Transportation Week is a good time to show the public how transportation is costing too much. p.38

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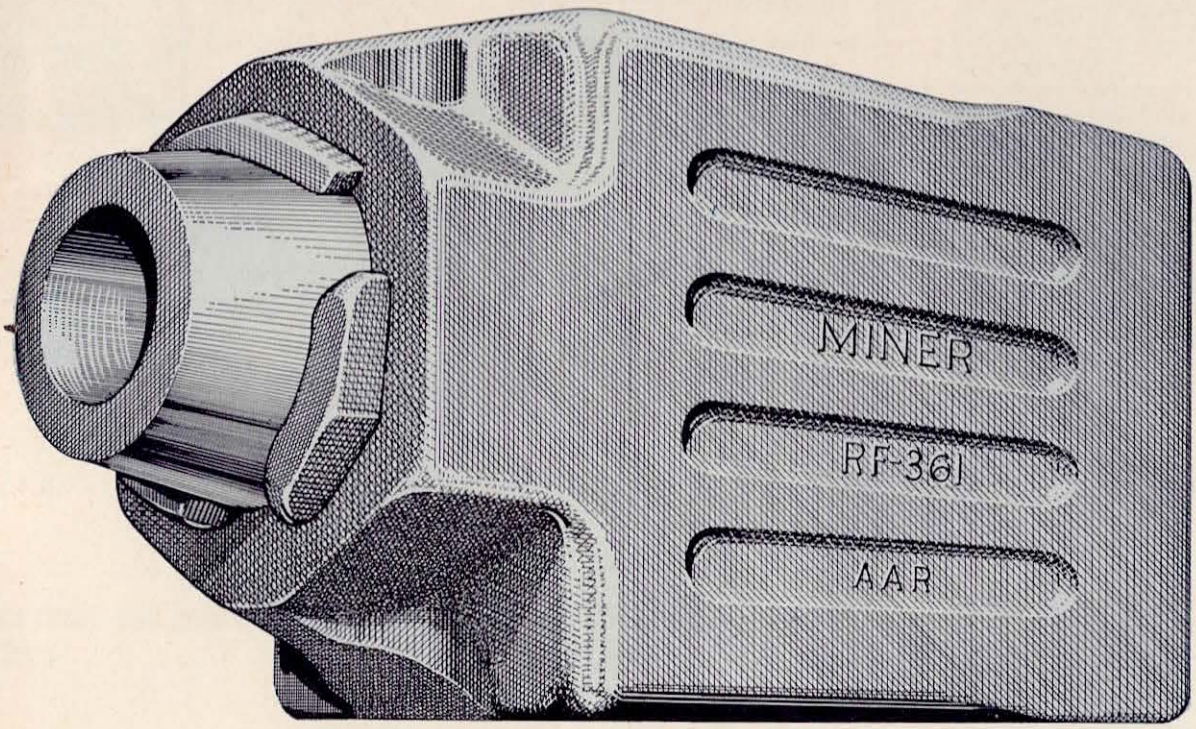

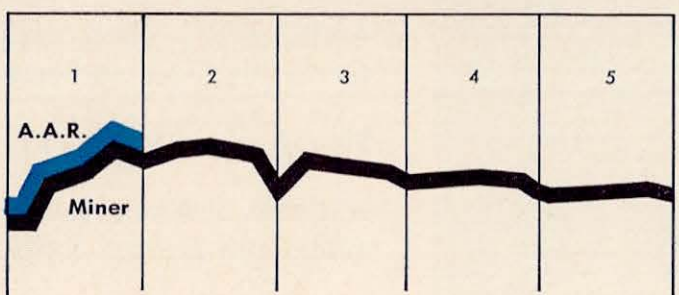

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SHORT AND SIGNIFICANT

The firemen's protest: three strikes . . .

Firemen across the country reacted quickly, bitterly, defiantly last week, as the fireman-off arbitration award went into effect. Strikes—unauthorized, the BLF&E indicated—hit Toledo, Peoria & Western; Peoria & Pekin Union, and Pennsylvania (Conway Yard). The walkouts were short-lived. By noon May 7, the three roads were back in business. But there were some fears in the industry that trouble might break out elsewhere, brushfire fashion.

. . . a court counter-attack

The walkouts came despite a U.S. District Court order barring strikes for ten days from May 5. BLF&E officers said they had tried to head off the strikes, then sought to get the men back to work once they had walked off. Meanwhile, both unions and the carriers were preparing for a hearing May 11 in Washington on the federal restraining order—and the BLF&E was expected to counter-attack then (or sooner) with a plea that the court restrain the carriers from applying the arbitration award until disputed points of intepretation are cleared up.

. . . and bitter accusations

Last week's flurry of strike action was preceded by a charge by BLF&E President H. E. Gilbert that certain roads were "deliberately misinterpreting the award to suit their own special interests . . . apparently the nation's railroads have decided that the award amounts to a license for each individual carrier's personnel officer to do what he pleases in placing the award into effect."

●

C&O will add jobs in a depressed area

Line relocation work of the Chesapeake & Ohio will provide 2,000 additional jobs in Pike County, Ky., for a year and a half, according to M. I. Dunn, C&O senior vice president for operations. He made the statement in testimony before the Senate Appropriations Subcommittee on the $11 million contract with the Corps of Engineers for diverting C&O trackage from the site of Fishtrap Dam. Mr. Dunn cited a long-range benefit, too: the 19 miles of new line will permit the opening of new coal mines, which should give the local economy a big boost.

●

State aid for Boston transit?

Massachusetts Governor Peabody submitted a $200 million plan to the State Legislature for aiding mass transport facilities. Among his provisions for the proposed bond issue: creation of a Massachusetts Bay Transportation Authority to supersede the present MTA, construction of rapid transit extensions to Boston's present system, and funds to commuter rail lines on a limited basis.

●

Signalmen's wage dispute settled

About 12,600 employees represented by the Brotherhood of Railroad Signalmen are going to get a raise. A new pact, agreed to by the carriers and the BRS, provides an increase of six cents an hour for all signalmen, with an additional four cents an hour for highly skilled men. Increases are retroactive to Jan. 1, 1964.

●

RI-UP merger vote postponed again

For the second time, a Rock Island shareholder vote on merger with Union Pacific has been set back. The first postponement, late last year, developed out of a court action. After the case was cleaned up, RI set June 12 for a special meeting. Now the vote has been put off to July 17.

MONDAY MORNING REPORT

Union strategy and the 'right to strike'

How much will brotherhood strategy be re-shaped, at other times and on other issues, as a result of the unions' relatively unhappy experiences in the work-rules case? Nobody can say for sure—yet. But there are strong rumblings from several quarters, all indicating a top-level knowledge that a new assessment should be made in at least one area—the use of economic strength.

Changes for the BLE?

In particular, the Brotherhood of Locomotive Engineers is trying to prepare the rank-and-file for possible changes in union policy— including tactics to be employed in the still-pending wage-health-welfare case. The word—from Perry S. Heath, first assistant grand chief—goes this way: "With the experience of the five-year work-rules dispute behind us, we must turn to a new approach. We must avoid steps that could lead to a fresh national crisis. We must move wisely and deliberately, alert to the possibility that the carriers may again seek to box us in and force us into a situation where only the President, putting his prestige on the line, can forestall legislation that would deprive us of the right to strike. We can still progress our notices of last Nov. 12 expeditiously and successfully, but BLE officers and members will have to readjust their thinking. They will have to understand the necessity for a different approach."

Strength—and how to use it

Key to the problem, of course, is an apparent fear among top union leaders that the brotherhoods' main weapon—the strike—has been badly blunted. Says Mr. Heath: "It appears that the BLE has great economic strength—in fact, more than we can use—and that only a careful and judicious use of it can preserve freedom and collective bargaining. . . Let's face it—quite possibly we have lost the right to strike on a national basis."

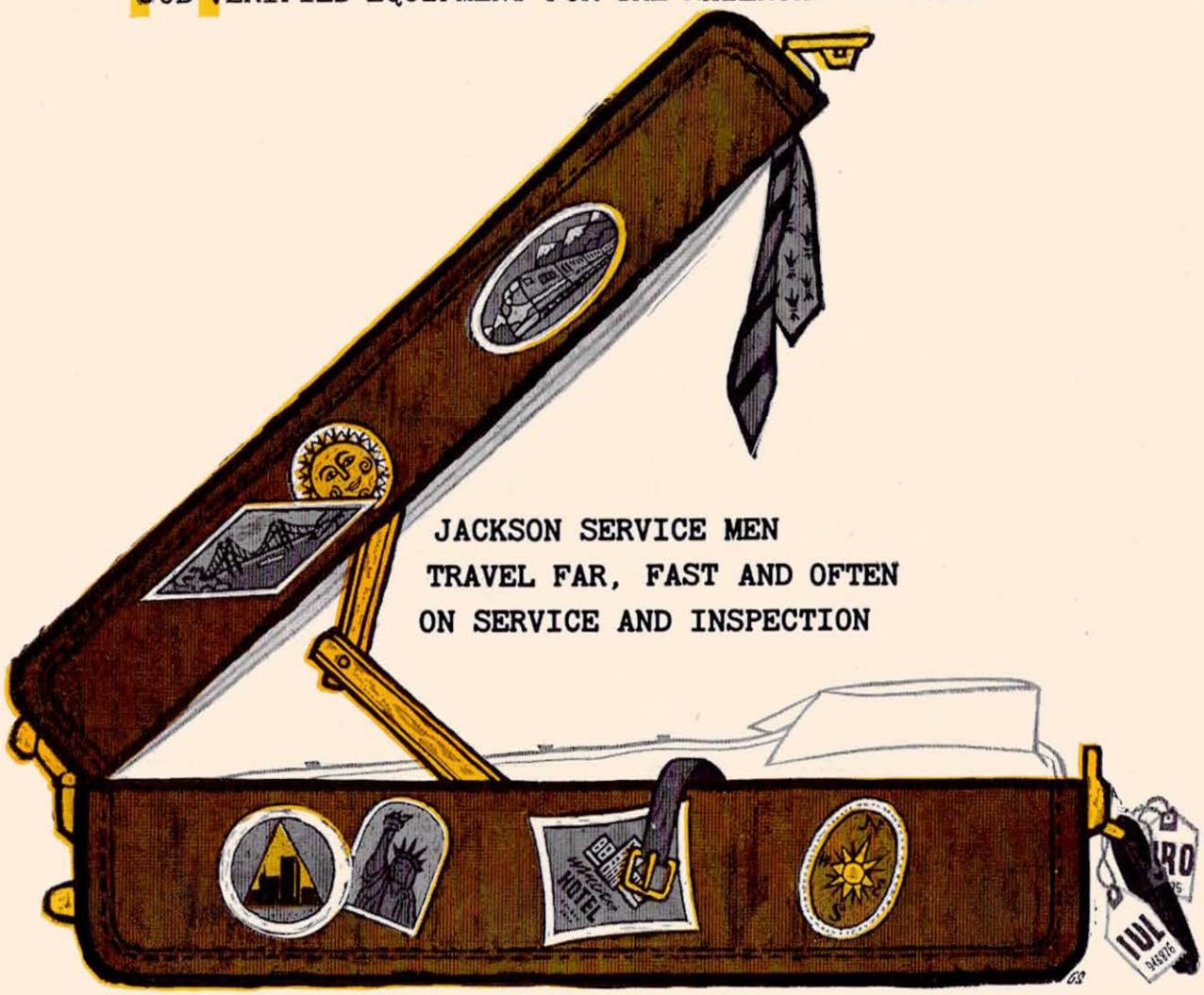
Mounting pressure for local negotiations

Some union observers tend to regard the "right to strike on a national basis" as a theoretical thing at best. Their primary concern now lies—or seems to—in fragmenting bargaining, in maintaining the right to walk out on individual properties. Trainmen's President Charles Luna has been talking up local negotiations on certain issues: the BLE itself is trying (without success, thus far) to progress its wage-health-welfare demands locally; the brotherhoods generally have been decrying the carriers' concentration of negotiating strength in the National Railway Labor Conference. Through it all, the organizations insist that the Railway Labor Act "does not require national handling of disputes. To the contrary, the Act contemplates negotiations and agreement between a general committee and an individual carrier."

'Theory is easy—practice is tough'

If there is a summing up of union thinking to be made, it might be put in Mr. Heath's words—which state both the position and the problem: "The right to strike must be maintained. The threat of a strike is what makes collective bargaining work, and collective bargaining is the best way—the American way—to settle labor-management differences. The theory is easy. All the experts agree that collective bargaining is the proper process, the democratic one. But the practice is difficult."

JOB VERIFIED EQUIPMENT FOR THE RAILROAD INDUSTRY



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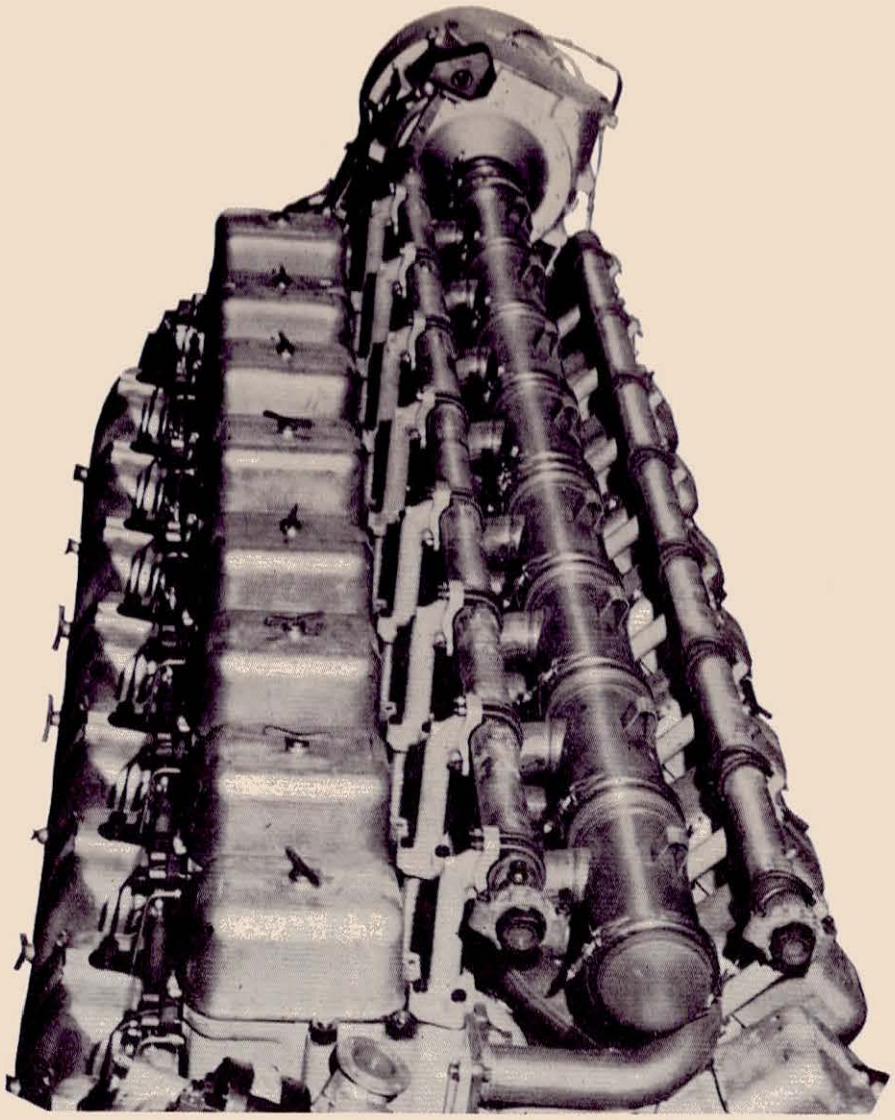

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Rail profits rise sharply, but—

Railroad net earnings in this year's first quarter are estimated at $145 million—72% higher than in the comparable 1963 period. But the rate of return is still far from healthy.

Railroaders will look back on the winter of '63-'64 with mixed feelings. On two fronts—labor and legislation—it was a time of crisis and discouragement. But the carriers came out of the winter of their discontent with one moderately bullish piece of news: their profits were up.

Railroad earnings for first quarter '64 are now authoritatively estimated at $145 million—a 72.6% increase over first quarter '63's $84-million net.

This does not mean, by any stretch of a brotherhood chief's imagination, that the carriers are back in the big-money league, that—for example—they don't still desperately need work-rules and legislative reforms.

By any normal business yardstick, the railroad rate of return is still on the low side. For the 12 months ended Mar. 31, it was only 3.3%. In any case the first-quarter performance reflects a number of unusual conditions that won't necessarily be repeated.

● **Russian grain helped.** In the Midwest, heavy grain shipments destined for the Soviet bloc helped fatten railroad revenues. In the East, a mild winter kept expenses abnormally low. At the same time, business conditions generally have been unusually good. Carloadings are running 1.8% ahead of last year; ton-miles are up even more substantially—5.8%. And piggyback loadings are running nearly 10% above 1963. (Not everyone believes that these are necessarily long-term gains. One railroad man's comment: "The trucks are getting more traffic than they can handle. We're getting the overflow.") In many cases, also, accelerated depreciation strengthened (and somewhat distorted) earnings figures.

Whatever the reason, the sharp upturn in first-quarter earnings is cause for at least modest rejoicing. This is especially true in the East.

● **Red to black.** The Pennsylvania, for example, reported system earnings of $9,569,000 for this year's first quarter, compared with a deficit of $5,847,000 in the '63 period. The Pennsylvania Railroad Company showed a first-quarter profit for the first time since 1957.

The New York Central also had good news for shareholders. NYC lost $7,887,122 in last year's first quarter: this year, Central earned $1,035,176. President A. E. Perlman cited the comparatively mild winter as a factor.

(Less bullish news came from the Reading, which plunged deeper into the red. Reading's net deficit in this year's first three months was $2,234,-114, compared with a deficit of $1,-768,560 in the 1963 quarter.)

Among railroads benefiting from heavy unseasonal movements of grain was the Great Northern, whose first quarter net jumped to $7,132,149. Last year's comparable figure was $2,832,-977. GN's first-quarter grain traffic was up 54% over 1963.

● **Western roads show big gains.** In the west, three big earners—Union Pacific, Southern Pacific and Santa Fe—are still hitting a healthy stride.

UP's first quarter net was $19,450,-136, an increase of $1,407,138 over the corresponding 1963 period.

SP and its subsidiaries had profits amounting to $29,135,411 in this year's first three months, compared with $21,-356,348 last year.

Santa Fe's system earnings for the January-March period were $16,061,-566, about 22% over the $13,172,785 reported in 1963. ■

How 10 roads performed

(First quarter—Millions)

RAILROAD	1964	1963
ACL	$ 4.3	$ 3.4
ATSF	16.1	13.2
C&O	8.6	7.0
GN	7.1	2.8
MP	6.3	5.5
NYC	1.0	—7.9
NP	4.9	2.9
PRR (system)	9.6	—5.8
SP	29.1	21.4
UP	19.4	18.0

WATCHING WASHINGTON WITH WALTER TAFT

TAFT

• **THE ICC** has cleared a railroad rate adjustment, thus making a determination which it calls "tantamount to approving a new and novel theory of ratemaking." The Commission has also cleared a truck rate adjustment which it considers of such "relative novelty" as to make that decision "unusually important." The railroad rates, cleared in No. 33520, are multiple-car rates on transited soybean cake and meal which are featured by a single-car origination rule. They apply from midwestern origins to South Atlantic and Gulf ports for export. The truck rates, cleared in No. 33672, are weekly rates on petroleum products moving out of Sparks, Nev. They apply to quantities transported in seven consecutive days by one vehicle or a combination operated as a single unit. Both have been in effect for more than three years.

THE RAILROAD RATES were published to help domestic processors of soybeans who were using more expensive truck-barge services and finding it difficult to compete in world markets with foreign processors. The single-car origination rule provides for application of the rates as through rates, even though inbound movements of the soybeans to transit points are in single carloads. Outbound shipments from transit points are in multiple-car lots, since the tariffs' minimum-weight requirements call for at least 500 tons per shipment.

ALLEGATIONS OF PROTESTANTS included contentions that the rate are a "departure from conditions normally attached to multiple-car rates," and that they were not established for the usual multiple-car-rate purpose of meeting competition of another transport mode "whose unit of transportation is not limited to single carloads."

THE COMMISSION rejected all such contentions. It found the single-car origination rule justified by such "practical considerations" as the inability of country elevators to originate more than one-to-five cars of soybeans per day. It also found, in its past decision, precedent for approving multiple-car rates because of market competition as well as carrier competition.

TO ALLAY CONCERN about general extension of the "new and novel theory," the Commission cited comment it made sometime ago in approving volume rates on coal moving to New York. The citation applied again here the notice then served that a Commission decision on "these unusual facts and circumstances does not constitute a precedent for the indiscriminate use of this form of ratemaking."

THE WEEKLY TRUCK RATES were published primarily to meet the competition of private carriage. Attacks on them included an allegation that they are contract rates like the railroad rates on carpet between Amsterdam, N. Y., and Chicago which were condemned by the Commission. That rate was for carpet shippers giving at least 80% of their annual traffic to the railroads.

IT WAS DIFFERENT from the weekly truck rates, the Commission said. It rationalized that "a contract which ties up traffic for only a week can hardly be compared with a contract which removes traffic from competitive bidding for six months to a year." Another distinguishing factor which impressed the Commission was the absence of any regulated-carrier protest against the weekly rates.

A revised transport bill in '64?

There is still some hope among railroaders for 1964 legislation responsive to that phase of the late President Kennedy's Transportation Program which calls for more equitable regulation of carrier ratemaking. The hope is based on renewed interest of President Johnson, which has come in the aftermath of the House Rules Committee's refusal to clear H.R. 9903 for consideration by the House (RA, May 4, p. 12).

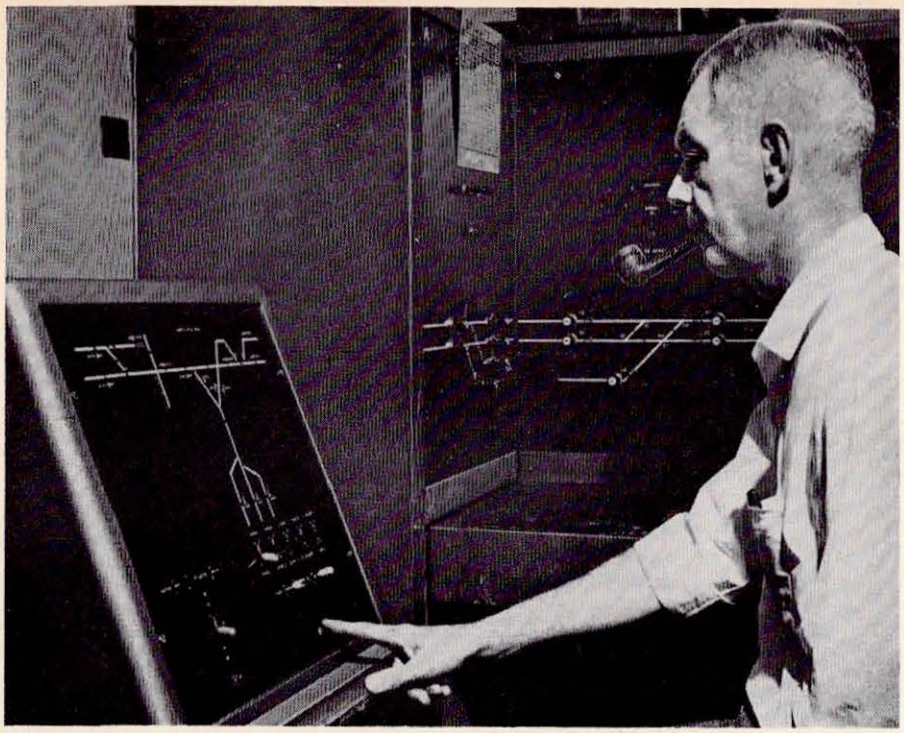
H.R. 9903 is the controversial transportation Bill favored by the railroads. It is sponsored by Representative Oren Harris (D.-Ark.), Chairman of the House Committee on Interstate and Foreign Commerce. It is that Committee's response to the late President's Transportation Message of April 5, 1962, which has been endorsed by President Johnson.

Provisions of the bill most vigorously opposed include those proposing partial repeal of the Interstate Commerce Act's commodities clause, which prohibits railroads from transporting commodities (except lumber and their own supplies) in which they have any interest; and extension to railroads and forwarders of a tightened version of the Act's agricultural exemption which now leaves truck transportation of agricultural and fishery products free of regulation.

• **New try.** In the aftermath of the Rules Committee's adverse action has come an undertaking of the White House to get things moving again. It is understood that representatives of the railroads have been among those consulted as part of this White House undertaking.

Presumably, also, the undertaking involves an attempt to convince Rep. Harris that another effort to clear the Rules Committee with a meaningful bill would not be futile—or, if successful, would not come too late for enactment of the bill at this session of Congress. Mr. Harris is expected to take some convincing that anything can be accomplished this year.

• **Senate gets bill.** Meanwhile, Sen. Warren Magnuson (D.-Wash.), chairman of the Senate Commerce Committee, has introduced in the Senate a bill, S.2796, with some of H.R.9903's non-controversial features. ■



Operator presses code start button to send controls for clearing signals.

MP uses solid-state signal controls

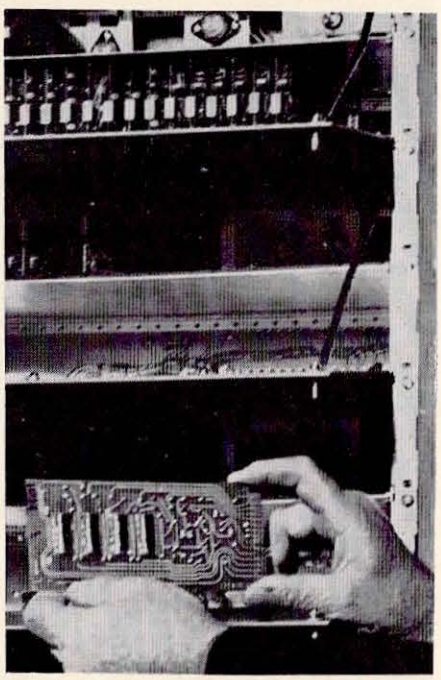
Controls of two interlockings are combined at a third location. Transistorized-type control system operates over a wire pair.

Solid-state interlocking controls have scored again. Missouri Pacific has chosen a solid-state system for handling remote controls and indications at two interlockings in East Little Rock, Ark.

If the MP had selected conventional direct wire controls—one wire for each function, plus a common return—a multi-conductor cable would have been required. The new transistorized system, however, operates over a pair of wires. The solid-state system was installed for about two-thirds the cost of multi-conductor cable.

● **Old plants replaced.** The new control system is used in a consolidation-of-controls project. Two interlockings were involved: a single-track crossing of the MP and the Rock Island; and a wye junction of the MP.

The MP-RI crossing is just south of the RI's Arkansas River bridge. MP runs east and west, approximately parallel with the river. This crossing, a semi-automatic interlocking, was controlled by a mechanical interlocking machine. Just west of this plant is the MP wye junction, with lines running north across the river into North Little Rock yard, and west to North Little Rock Union Station. The junction plant was controlled from the mechanical interlocking machine by a small toggle switch control panel. Controls and indications were handled in multi-conductor cable between the panel and the signals at the junction.



Buffer relays interposed between transistor system and safety relays are mounted on printed circuit cards.

When it was decided to modernize and consolidate the controls of these two interlockings, an existing tower at North Little Rock yard was used. The new control office, with its panel-type machine, is 1.5 miles from the field stations (former interlockings). Hence, the physical separation of the control machine and the switches and signals to be controlled posed the problem of providing either direct wire control using cable, or a remote control system operating over a wire pair. The latter was chosen, using Moore Associates' Marc VIII system. This solid-state system employs a comparison of two control frames (cycles) on a bit-by-bit basis before any change can result.

● **How it works.** Transmission is by direct current pulses of either long or short duration. A long pulse is for an "on" function, and a short pulse is for an "off" function. A half-duplex line is used in which transmission can be in either direction at one time, but not in both directions simultaneously.

With no controls in progress, the system calls each field station or interlocking, one at a time. Each field station, upon being called, will shunt the line indicating one or two answers: "have no change," or "a full set of indications."

This interrogation continues until a control is transmitted, at which time the interrogation stops. The control cycle is sent. The field station to which the control is sent transmits a complete set of indications.

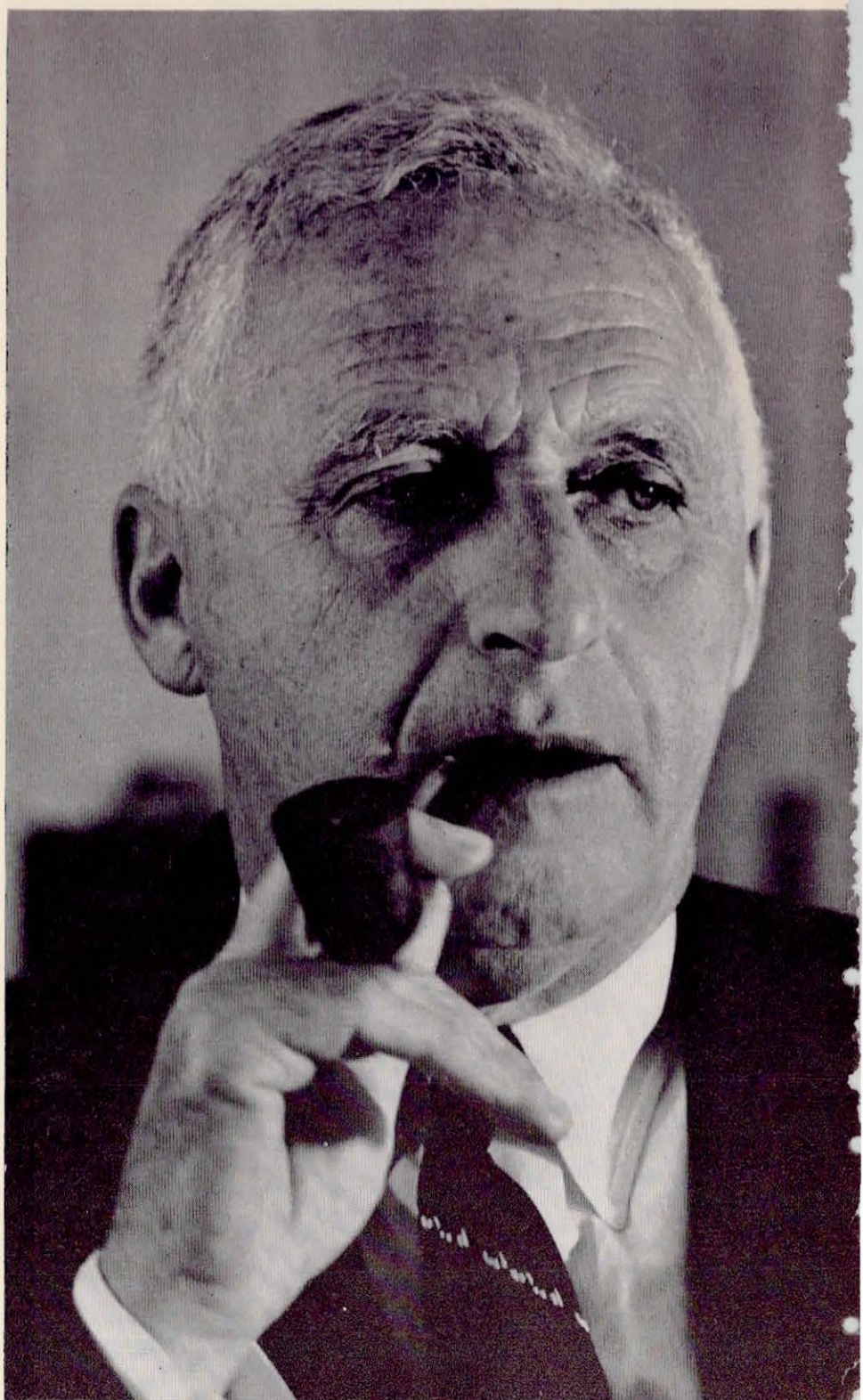
When first installed, the system operated at a rate of 10 pulses per second. Because a higher speed would be desirable, particularly if the present system were expanded, tests are in progress for a rate of 20 pulses per second. Indications are that the higher rate will be satisfactory.

● **Buffer relay stage used.** It was believed that the high inductive pulses generated by the energizing and de-energizing of the safety relays would damage a transistor output stage used to drive it. Accordingly, a buffer relay stage was inserted between the safety relays and the transistor output stages. These buffer relays, C. P. Clare type HgS magnetic stick, are mounted four on a printed circuit card. At one field location Automatic Electric taper tab, class E relay is used to repeat the buffer relays. At the other field location, General Railway Signal type K relays are used. ■

EXCLUSIVE INTERVIEW WITH NYC PRESIDENT

Perlman: Revolution through research

The Industrial Revolution took the pressure off men's muscles, says Alfred E. Perlman. What he calls the Second Industrial Revolution—the whole field of computerized research—is supplementing men's minds by using machines to do what once were routine, time-consuming tasks.



Photos of Mr. Perlman by Russ Rypsam

When New York Central President Alfred E. Perlman goes before his shareholders May 12 in Chicago, he'll be telling them about a railroad system considerably different from the one he moved into 10 years ago. Then, NYC was running in the red. Imminent debt maturities seemed piled sky-high. The company had just emerged from a rough proxy battle. Today, New York Central is running in the black. NYC officers are confident that aggressive marketing programs, coupled with heavy investments in new equipment over the past several years, will keep it that way. They're also deeply involved in a variety of research projects, and in studies of the industry's newest applied science —cybernetics. Here, in an exclusive interview with Railway Age editors John Mitros and Gus Welty, Mr. Perlman discusses NYC's progress—and airs his views on a range of subjects from marketing to manpower, from technology to transport competition.

Q. Mr. Perlman, how do you regard the adequacy of research done today by railroads?

A. There would be a great deal more research in the railroad industry if we were allowed to benefit from the results. Let me explain. The Tokaido line in Japan is being built with complete automation. They have a man in the train but the whole train is so automated that it slows down and stops at the proper places without any manual assistance whatsoever. In the United States, we have all the hardware to operate that way today. We're more advanced in hardware than any other country in the world. Space technology enables us to guide a rocket to the moon, turn it on its course, do anything we want with the rocket—without anybody in it.

Right now, we could have a train guided on tracks with automatic train control and automatic train stop—in fact, completely automated—but we're constrained from doing so by unrealistic work rules and, in some cases, by legislative mandate. So when you ask, "Are you doing enough in research?", I say we could do more—if we were allowed to convert the results into actual operating service to our customers and into dollars and cents to our owners.

Q. How far has actual railroad research advanced?

A. As you know, we started perhaps the first laboratory that did any basic research out in Denver when I was with the Rio Grande. We've carried that forward on the New York Central, in Cleveland. The Cleveland lab is doing all kinds of startling things, even medical research. Actually, the operation has been so successful it has become a profit center for the railroad.

Let me tell you about one development that came from laboratory research. In Denver we discovered that by using the spectrograph to analyze particles in lubricating oil, we could tell when an engine had to be shopped. Without taking the engine apart—the engine could be a thousand miles from the laboratory—we could detect what was wrong with the pistons or liners. All we needed was a sample of oil.

Today, our lab at Cleveland is doing much the same on human beings. We can find out if their livers are functioning properly or if they're susceptible to heart attack or arteriosclerosis by a sample of blood that's analyzed by the same machine.

Q. How is NYC's research center operating?

A. It's doing work for us and for outside people and making products—like the Vortacool water cooler, as an example. With this unit, you don't need freon. Our researchers found that by taking compressed air from the brake cylinder and just putting it through a little orifice which whirls it around, you separated the hot molecules from the cold molecules. A pipe goes one way, and that heats the engineer's feet in the winter. Another pipe goes the other way, taking the outside molecules, and that cools the water in the water cooler. There's no moving part at all, just that little orifice.

Q. Are these devices patented by NYC?

A. Yes, by the technical center—Cleveland Technical Center, Inc. They do work for medical groups and others, of the type that requires the same instrumentation that we use in railroad work. This is not long-hair research, out in the wild blue yonder. It is all applied to things that will help us. These are the kinds of apparatus we buy and how we're oriented in our thinking.

Q. Have railroad suppliers requested research projects from the center?

A. Oh, yes. Some of the equipment people have come to us for a solution of their problems. Some of the oil companies and others have done the same.

Q. In view of the labor and government restrictions on applying technology developed by the center, would you say that, in the long run, it has repaid Central's investment in research?

A. Oh—many, many, many times over every year. What we save in locomotive repairs and fuel and lubricants alone pay for that center a hundred times over a year. Just that. We used to have to take a locomotive apart every so many miles and put it together again to make sure. It's just like you clean a watch every so many months, and then you have a tough time getting it adjusted for a while. So, every so often we had to take a locomotive apart—and that costs about $18,000 just to do that and put it together again. Now a diesel can go maybe ten times as long without any worry at all.

Q. One of the criticisms often levelled at the industry generally is that railroads are spending only a fraction of what they should for basic technological research. In view of the restrictions you have mentioned, do you think that's a valid criticism?

A. Certainly not. Do these critics think, for example, that airlines are more modern in their research? Actually, airlines don't spend a cent on research. The government subsidizes research for airlines but doesn't do a thing for railroads. Ironically, we're doing research for some of the airlines on the Central. They don't have any facilities for research. What do these critics mean when they say we don't spend what we should? Compared to whom?

Q. Usually they mean compared to other heavy industry.

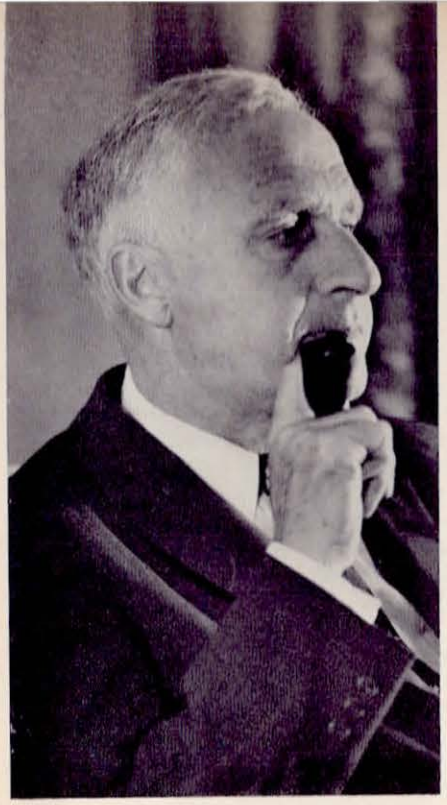
A. Well, if industry is manufacturing railroad equipment, which they make at a profit, are we obliged to do their research? Do airlines and ship lines do that kind of research for the aircraft and shipbuilding industries? I'm afraid I don't understand the comparison.

Q. Research, apparently, is a problem that has to be rationalized somehow because the industry does need to have the research done.

A. Well, if only these critics, who are in most cases college professors without any practical railroad experience, would realize what goes on in the railroad industry and how many millions we're spending—to give you one example, we perfected Data Central. There isn't another industry in the country, or the world, that has the kind of communications system we will have come the middle of this year.

Q. This is a Central development?

A. Yes, sir. The professors are just misinformed or uninformed. I once worked for a man who expressed their difficulty quite succinctly: "You're



'We were the first railroad to give the marketing function greater weight than sales.'

'We spent over $200,000 on research on one car, just in the marketing end—not technical.'

'Containerization is another marketing concept that is taking hold very quickly.'

down on the things you're not up on." If these people came to New York Central headquarters and saw the work that's being done in electronics, they would be amazed. I recall we once had one of the institutions of higher education try to work out a research program on where our yards should be located on the New York Central. We built all our yards, except one, before they came up with an answer. They didn't know how to solve the problem.

This is why I get just a little bit warm under the collar when I'm told we should put up $10 million for the railroad industry to allow college professors to do our research.

Going back to one of your questions, the trucking industry is supposed to be a modern industry. But they don't design trucks or build trucks or do research on trucks. And why are the trucks doing so well? It's the new highways. Greyhound and the other bus companies were operating at a loss until these new highways bypassed the towns and cities. They're not leaders in research—they didn't do the research that led to the construction of these superhighways. And here we—railroads—have the hardware and we're not allowed to use it.

Q. Doesn't that suggest that more research ought to be done on the nontechnical aspects of railroad operation?

A. You're referring to marketing research, public relations and government relations, I'm sure, and I'd like to talk about these areas. We're doing all these things. As an example, this is the first time since 1913 that we've really had public support in our efforts to have the New York State excess-crew law repealed. We—the industry, that is—got the Transportation Act of 1958 passed. That's helped to some extent. The late President Kennedy was the first President of the United States to state that the regulation of transportation in this country is chaotic. Through the Eastern Railroad Presidents Conference, eastern railroads have groups in every major city in the East that interpret the public relations objectives of our industry to the public. We have spent a great deal of time and effort in this direction on both state and national levels.

Q. In other words, you regard the principal barriers to benefitting from railroad technological research as the labor and government barriers?

A. Yes. Railroad marketing research is different and we're doing more in this area than anybody realizes. We were the first railroad to split our traffic department into two functions and give them equal weight—actually to give marketing greater weight than sales.

We have a group of top people who are market research experts in those industries which provide the bulk of our freight traffic. One man is an authority on automobile production, one on chemicals, one on steel, one on products of agriculture. They are researching our customers' needs; on how we can benefit customers with more efficient types of equipment; on solving stacking, loading, and unloading problems at the customer's plant, on giving different kinds of service that will benefit the customer.

The multi-level automobile car came into being through market research. Last year Central alone handled 725,000 automobiles on multi-levels. Three years ago these new automobiles were either going via highways or lake carriers. Our marketing efforts to recapture this automobile business were so successful they caused a lake carrier to sell its four boats a short time ago.

The integral coal train was a product of market research. We made extensive studies and discovered we could set more competitive coal rates, still remaining above our costs, by tying rates to both volume and time. The coal pipeline in Ohio got its start because it had a through-put guarantee of so many tons of coal a day for so many years. That's why it was built. Four railroads, including the Central, were able to secure a through-put agreement between railroads, mine and electric utility. The agreement involved volume of coal, purchase of the cars by the utility, guaranteed time limitations on loading and unloading by mine and utility, and guaranteed schedules by the railroads. The savings created by this agreement made it possible to mothball the pipeline without any loss to its backers.

'Computers can do work more quickly than is humanly possible—and get more answers.'

Now the Central has introduced Flexi-Flo, a pressure differential car for transferring dry bulk commodities from rail car to trailer truck which we think is going to do for cement what the multi-level did for automobiles. We've spent over $200,000 on research on that one car, just in the marketing end —not technical—just marketing.

Q. You think this may be the next traffic breakthrough?

A. Oh, yes. We'll have some of these cars this year and we've already arranged the business for every one on order. This will be the pilot for what we believe is going to change the whole marketing concept in cement. For instance, you'll have the advantage of the efficiency of the steel wheel on the steel rail for the long haul and the flexibility of the truck for delivery. You won't need any silos or any facilities to unload from the rail car into a silo and then into a truck. Unloading is automatic with transfer of 20 tons of dry bulk commodity by air pressure from a 125-ton hopper car to a trailer truck in less than ten minutes—that's a rate of two tons per minute. We feel this is going to be quite a thing.

Containerization — Flexi-Van, which has grown every year—is another marketing concept that is taking hold very quickly. So we are making great strides in marketing research.

The research that's gone into pricing is also startling. We've learned that you have to know your costs. And you have to know the effect of the load factor. And you have to have an understanding of the competitive forces in the marketplace. You have to know, for example, what truck delivery would cost your customer for certain lengths of haul and what service the trucker can offer. You have to know what water competition costs your customer and what air cargo would cost him. You have to know the effect of decentralization. That is, you could undercut your truck competition from New York to Denver and give your customer a lower rate—but if that rate was so high he could further reduce his costs by putting a plant out near the Rocky Mountains, you would still lose the business.

The multi-level car has revolutionized auto manufacturing in that we have cut the cost of transportation so that an auto manufacturer, who doesn't have decentralized plants, is doing pretty well. And the other auto manufacturers no longer have the advantage they once had because of decentralization.

You could say, "Oh, we've undercut all our competitors"—but you must consider this other factor: Is the rate still so high that it would influence industry to decentralize? There are so many factors in pricing that require tremendous research. Many people don't understand these factors—they think when they talk about research that it's technical research alone.

Q. In your marketing approach, do you consider commodities from the standpoint of their competition? For instance, coal in relation to oil—the availability of a competing commodity?

A. Oh yes, this is really what brought on the integral train. We knew that coal is purchased by the utilities on the basis of the cost per B.T.U. under the boiler —and if the cost per B.T.U. under the boiler for residual oil or dumped gas is less, it's going to be residual oil or dumped gas. Or if atomic power ever became less costly, it would be that. Or if transmission by wire should ever be less, it would be mine-mouth. All these things are taken into consideration. This is all part of marketing research. And this is why we have put such tremendous stress on this function.

You see, in the old days, it was a question of production—could you handle the load that was offered to you during wartime or during a peak business period? The accent on the railroad was on production, and it was on efficiencies that would lead to cost reduction through reduction of expenses. But railroads have a tremendous overhead cost which doesn't fluctuate with the business. If we didn't turn a wheel, we would have to pay out $120 million a year for taxes and interest on our investment. This figure doesn't include the additional costs of management or several other factors. So, as we can increase volume with the same plant, most of this revenue comes right down to net and helps give us the ability to reduce rates.

Q. Mr. Perlman, what about research on computer technology—cybernetics?

A. We're into that in a big way. On this, we're spending in seven figures per year, right now. In fact, we're spending more than $10 million a year on all types of research on the Central.

Q. Computer technology on railroads has grown rapidly. What's your view as to its continued growth?

A. It will be much more widespread. The AAR now has a group concentrating on the whole field of cybernetics. This came about through our meeting in Paris [International Symposium on Railway Cybernetics, November 1963] with railroads from all over the world. It was the first time, really, that our own people, experts in the hardware and programming and the whole area of management use, were brought together. It was a great forward stride.

Q. What specific areas on railroads are likely to become involved, as computer technology spreads?

A. In programming of service problems, in utilization of equipment, in solving many of the operating-service problems we've had. Do you use short trains at lesser intervals or long trains at longer intervals? Do you use more horsepower or less horsepower on a train? We're getting into things on our operating computers today that we never thought possible. Its been a very interesting experience—and every day we're learning more about what can be done. It's obvious that computers can do work more quickly than is humanly possible, and they can get more answers. For instance, some of the variables that always go into any problem would take years to solve in a normal way, but they can be solved quickly by the proper programming of the computer.

We are going to have answers to things that would have been so expensive to achieve they would have been economically impractical to undertake. We're finding this out, more and more, as we go along. The first thing that has to be done—and this is fundamental—is that every department head has to know what he wants. This is the essential starting point. Thereafter, the technicians—the programmers —can try to work it out for him. But they can't read his mind or even begin to attack his problems, unless he tells them what problems he needs solved. This concept has to be understood in an organization—that it is not a one-man job, that every department head

has to get into it on his own.

Q. Management itself, then, has to become technologically sophisticated?

A. That's right. And, fortunately, we've had this on the Central. We've had meetings of top management to discuss these things in detail. We've had our management people at computer schools and at computer manufacturing centers to make them realize that they must have an interest in and an understanding of the capacity of this whole area of cybernetics. They can't delegate these responsibilities. They must get right into it themselves.

Q. What's this going to do for the industry in time to come?

A. Well, as an example, it's allowing us to put in a complete new system of cost controls. It's allowing us to get better utilization of certain types of our equipment, and we're profiting more and more every day because of it. This is a very arduous task because programming is a long and expensive process and requires an enormous investment in time and money. But, to get back to the question of research:

Certainly, the new age is putting us more into research, not just the railroad industry but every industry. Take the steel industry. For a generation, steel has been made in practically the same way—until the last three or four years, and then the American steel manufacturer found his methods obsolete. Our plants are all being rebuilt. This is what I call the Second Industrial Revolution, this whole field of cybernetics. The first revolution took the pressure off men's muscles. This one is supplementing men's minds—taking the routine, time-consuming tasks away and substituting the machine.

The research that railroads have done in the last three years has reversed the trend and has put them back into the running as a growth industry. For the first time in years, railroads are taking the lead in the growth of this country. For the first time, truck inter-city miles are not showing the gain that railroad inter-city miles are showing—the percentage, that is, of the total. I honestly believe this is because of the tremendous amount of research—technical and marketing, and the new science of cybernetics—that the industry is conducting. Actually, I would say that the railroad industry is doing a much greater job in the field of research than the public realizes.

Q. As this research is applied, it would seem to demand a different kind of work force on the railroads in terms of capability, education and experience. What will railroad manpower requirements for the future entail?

A. They will entail a much higher standard of education, creativity, and intelligence. This is true of all industry in America.

Q. In view of the fact that railroads have turned a corner and are again a growth industry, do you think the investment community will make more available to them the great sums of money that will be needed for the kind of technological change we're talking about?

A. I would think the financial community is already greatly aware of this. They are influenced in their thinking by the rail stock averages—and the Dow-Jones rail average, for example, is at an all-time high. This would seem to indicate that they have received the message very quickly. It has always been my experience that if a good analysis of the benefits to be derived from a capital expenditure can be made, the money is forthcoming some way or another. We have had that experience on the Central. We have poured a half-billion dollars into improvements on this property since I've been here. We have reduced our debt a quarter of a billion dollars—and yet ten years ago, there was a question of whether we could even meet our payroll. We have always found that, given an intelligent study of the needs and the betterment of the net income, money can be obtained some way or another.

Q. Will machines do the basic research for railroads to determine their true markets and their true areas of profitability in terms of the whole industrial mechanism of the United States?

A. They can, but if you say "Will they?" this again depends upon men's minds. These machines will not take the place of men's minds entirely. Unfortunately, in our industry, one railroad or five railroads can't go it alone. We are intermingled with through routes and rates, and there is a national car fleet. All these things make it almost mandatory, in many operating areas, that the industry be national in scope. If one railroad puts in an automatic-car-identification system, what good is it if other railroads don't have the little tag on their freight cars? This is one of the basic inputs into the computer, and it has to be nationwide or it just won't work.

Q. Would the interconnection of railroad communication systems be a first step?

A. Yes, it would.

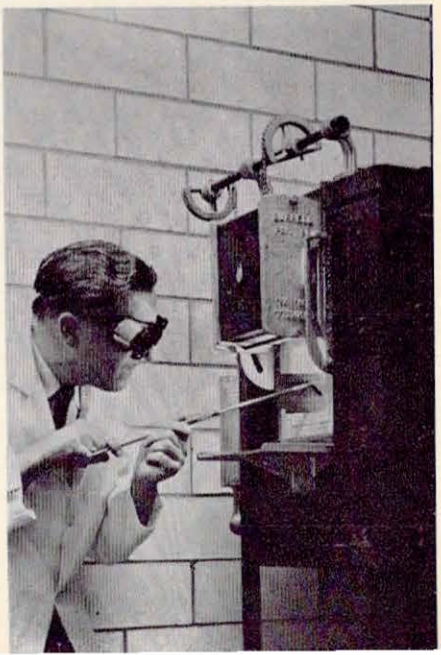
Q. Is there anything being actively progressed toward this?

A. Well, again you have this difficulty. The New Haven is struggling to get by, and the Central of New Jersey is struggling to pay its taxes. Now if

Nuclear instrument developed by the NYC takes the guesswork out of determining the condition of wooden cross ties.

Weatherometer, which can manufacture an entire summer of heat and rain, here tests weathering qualities of paint.

High-temperature furnace determines hardness, grain structure and melting point of brass sample from engine bearing.



these two roads aren't able to operate profitably, they are links that break the whole chain.

Q. The problem is what to do about the weak links?

A. Not only the weak links. Some railroads are down on the things they are not up on, and they probably want no part of such a system. Not all people think alike—sometimes fortunately and sometimes unfortunately—but it's true.

Q. This will diminish with consolidations and mergers?

A. That is one great advantage of consolidations and mergers. American Telephone & Telegraph would not be doing many of the things it is doing today if it were fragmented the way the railroad industry is.

Q. Apropos of this, what do you see, Mr. Perlman, as the ultimate in the current merger movement—or do you think there is such a thing as an ultimate?

A. In the East, of course, Central has worked diligently for a number of years to achieve three balanced competitive systems which would utilize a separate New England system. I think that this would have a tremendous effect in revitalizing the eastern railroad situation for many years to come. If that is the ultimate, I don't know. I would say for the foreseeable future—as far as I'm concerned—I think such systems would give a tremendous lift to the eastern railroad network.

Q. What is the status of the merger study in New England at present?

A. This study actually started shortly after 1920 when Professor Ripley of Harvard was commissioned by the ICC under the Transportation Act of 1920 to set up various railroad networks in the United States. At that time one of his conclusions was that the public would be best served, and the railroads of New England would be best served, if New England railroads were consolidated into one system.

Now we have the difficulty of one railroad in New England not being able to break even in its operation even if all its debt were wiped out. We have a second railroad with over $300 million of debt hanging over it. These are the problems. The physical problems are easy. You could save a tremendous amount of money with one system. Everything leads to the conclusion that one New England system would give New England a much stronger system that it has now. Again, it is a matter of degree when I say much stronger—because the situation has been allowed to deteriorate so much that the problem is how can you work it out?—not the physical arrangement, but the financial arrangements.

And the states must be realistic about taxes and about permitting these railroads to substitute highway transport for very-low-density branches. Unless many of these things are approached realistically, it would be difficult at this stage to get a reliable system in New England. It will take the cooperation of the railroads' debtors, the states, the federal government and labor. When Professor Ripley recommended it, it would have been easy to do. Today, the New Haven has difficulty in trying to get a plan of reorganization for its own railroad. I think it can be done if everyone will do his part, but no one group can solve the whole problem.

Q. There are some who are suggesting that government is the only agency that can restore some semblance of rationalization of transportation facilities in the East, the Northeast.

A. I don't believe that. I don't believe government alone can do it. The government can't confiscate the property of a debtor. A debtor has to be cooperative and practical before saying, "I am willing to forego this kind of paper for some other kind of paper." Under the free enterprise system, it isn't just the government that can solve eastern railroad problems. That is why I have worked so hard for many years in trying to get three competitive systems in the East. It hasn't been easy. The ICC wanted no part of it. In the beginning, the eastern railroads wanted no part of it. But the plans now before the Commission are for three balanced, competitive systems.

Q. People who suggest government as the only restorative agency imply creation of more situations like the New England situation would probably trigger government action—if the railroad community didn't somehow arrange to pull away from problems such as those they've gotten into.

A. Well, let's put it this way: How can railroads tell the state or states they serve that taxes are exorbitant? Or how can they tell their creditors, "You should cut down your debt"? The fact is that the federal government has been the worst of the offenders. When the New England thruway was built parallel to the New Haven, it sapped the New Haven. That was the death blow. Take the New York State thruway—from the time it was started until two years after it was completed, New York Central's passenger business in the state of New York fell 51%. How can railroads prevent that kind of raiding by the federal government?

When the St. Lawrence Seaway was built, we told the government it couldn't pay its way, that it was subsidizing foreign shipping, and that even American shipping couldn't compete. What can railroads do about this kind of thing? This is what's unfair in all these statements. The government itself caused the New Haven debt by subsidizing construction of the New England thruway.

Q. Do you have any strong feelings about what lies ahead for Central's passenger business and for the railroad passenger business generally?

A. As you know, about six years ago an ICC report forecast that in ten years the sleeping car business would be out and in 15 years probably the rest of the intercity passenger business would go.

At that time our passenger deficit was running about $54 million a year. We started really pruning—because up to that time we had spent $260 million since the war for new passenger equipment and facilities, and it was just increasing our deficit all the time.

We tried every gimmick. We tried reduced rates on roundtrips, we tried reduced rate off-peak coach fares, we tried excursions. We bought from Germany a hydraulic-drive locomotive and put Train X to work. It cost one-third the cost per seat of conventional equipment. We ran from Chicago to Detroit with 400 people with the same amount of fuel that two big automobiles would have used. We thought we had answers to passenger business problems through advertising and use of more and better equipment. All it did was increase our deficit. Then all these new highways came into being. And we have found that the passenger business is leaving the railroads at an accelerating rate.

Q. What do you see as the place of the various modes, logically?

A. Every form of transportation should be understood and used in its proper place. I have never been against airplanes or trucks or waterways. But they should be understood and used where they give the greatest benefit to the public. And it is important that all of them be treated equally. You shouldn't drive a low-cost mode out of business by subsidizing a higher-cost mode. ■

GP-35s add new motive power economy to Frisco's modernization program

New General Motors GP-35 locomotives coupled with new specialized rolling stock dramatize planned progress on the St. Louis-San Francisco Railway. The company's 17 new broad range GP-35s bring to the Frisco fleet new dimensions in motive power economy and efficiency: more work at lower operating cost, more in-use hours with less down time for service. And, the new GP-35s will work in consist with earlier fleet models without sacrificing efficiency. GP-35s on the Frisco—another story of railroad progress.

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RAILROADING AFTER HOURS WITH JIM LYNE

CURT BAYER SEEKS UNITED ACTION—The chairman of the AAR's Purchases & Stores Division, Vice President Curt Bayer of the E-L, has put himself strongly on record in bespeaking suppliers' help in attaining railroad objectives. And he revealed himself as a supporter of the suppliers' association—the Railway Progress Institute—in its program of railroad support. Mr. B. let it be known how he felt in a talk to the informal suppliers' group at Chicago's Union League Club on April 24. The Bayer view is that all railroad interests need to present a solid front and that firms in the supply business have common interests that should unite them.

LYNE

This problem of getting unity is faced by all industry associations—and is just as tough for railroad companies to solve as it is for suppliers. Meantime, the House Rules Committee knocked down the rate deregulation bill, H.R. 9903, by a 1-vote margin. I wrote a few letters to legislators in behalf of that bill—but, evidently, I did not write enough of them.

Apparently, judging by results, the enemies of this legislation must have worked just a little harder against it than those on our side worked for it.

'RAILROAD DAY' IN S.F.—Training directors from all over the country have set aside June 8 as 'railroad day' for a meeting at San Francisco's Fairmont Hotel. SP's John Detlor is chairman of the conference. Speakers will include Kaiser Steel's Vice President A. P. Heiner, CN's A. J. Bates, WP's M. M. Christy and Barney Pedersen, IC's H. V. Bostock, and SP's C. C. Robinson.

These management development and employee training people are a lot more prevalent and active on the railroads these days than most people (including most railroaders) realize. It seems to me there can scarcely be too much of this kind of work. Isn't it a fact that technology has been advancing a lot faster than people's skill at getting along with each other? A railroad is even more an organization of people than it is an accumulation of machines—and people represent the big part of the expense, too.

QUALITY OF UNION LEADERSHIP—An unsigned letter encloses a memorandum which (the writer says) the Western Traffic Conference at Oakland, Calif., distributes to its members. This memorandum goes into some detail in explaining how present working rules may exact pay for six or seven employees, covering the work of only one. But, then, the discussion goes to the "other side" and asks railroad managements to consider how they would like to be doing business with a labor leader like Hoffa.

I believe railroad management people and brotherhood chiefs understand each other pretty well—and that they can disagree on some points without being personally unfriendly, and while holding each other in mutual respect. The record of railway union leaders, as far back as I can remember, is singularly clear of instances of reprehensible behavior.

INQUISITIVE CONDUCTOR—NP Freight Conductor W. R. McGee at Livingston, Mont., has sent me a copy of a letter he has addressed to the presidents of his railroad and his union (and to a number of public officials). He tells in interesting detail of derailment of 19 cars of a train in his charge—the cause, apparently, being a break in a car axle which, he believes, had a prior defect.

Mr. McGee is inclined to be critical of local arrangements for car inspection—but I'd guess that routine visual inspection would seldom disclose the kind of defect he believes this axle suffered. Of course, this is just guessing on my part (and possibly also on Mr. McGee's). You don't necessarily improve the thoroughness of inspection by multiplying inspectors, any more than you add to safety of a train's operation by employing additional trainmen.

Devices for detecting hidden equipment defects are more and more in use—and railroad managements are just as interested, certainly, in preventing costly derailments as a conductor would be. Even though I cannot agree with Mr. McGee in his conclusions on equipment conditions, it seems to me that it is a good thing for train crew members to be inquisitive in this area.

Full-crew law set for court in Wisconsin

Wisconsin railroads are taking the judicial route to fighting the state's full-crew law. While carriers in a number of other states are trying to overturn crew laws through the legislative process, Wisconsin's eight roads will make their stand in the courts.

U.S. Supreme Court action upholding the fireman-off, crew-consist arbitration law and award apparently triggered the filing of the Wisconsin suit. Byron C. Ostby, executive director of the state railroad association, noted that the court decision will enable carriers generally to begin cutting off firemen: "Only in Wisconsin and a few other states which impose similar burdens will the railroads be prevented from carrying out the authority which they now have as a result of the lengthy proceedings which have finally been concluded in the Supreme Court."

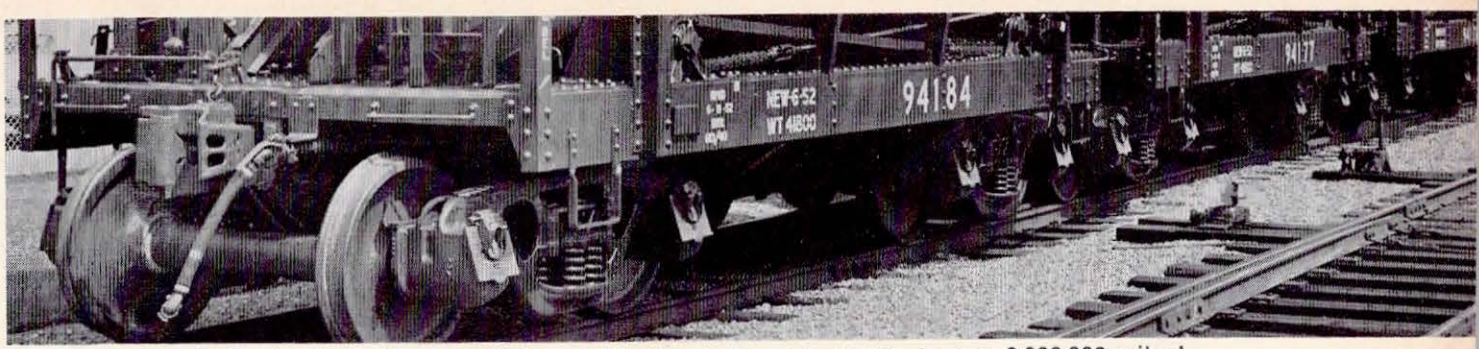
● **'Archaic laws.'** Wisconsin railroads, he added, "are simply seeking to modernize their operations in this state to the same degree as in other states. . . . These archaic laws are not found in any of the surrounding states of Illinois, Iowa, Michigan and Minnesota—and the wasteful expenditures which they require in Wisconsin will only retard its economic development."

Existence of the fireman requirement in Wisconsin and its absence in surrounding states, he pointed out, would require either the stopping of trains at the border to pick up and discharge firemen or the carrying of firemen on runs in states where they're not wired in by law: "Both practices are absurd," Mr. Ostby charges.

The full-crew fight in Wisconsin has been a continuing one, over the past decade. Twice—in 1955 and 1957—the legislature approved bills extending steam-train crew requirements to diesel-powered trains. Twice, the bills were vetoed. Then, in 1959, the legislature tried a third time and then-Gov. Gaylord Nelson signed the bill—though he did so with some reservations.

● **Law 'inadequate.'** Gov. Nelson called the '59 bill "inadequate to meet the problem. . . . The whole question of technical safety regulation of our public transportation is beyond the competence of the legislature."

Wisconsin roads claim the law "bears no reasonable relationship to the safety of plaintiffs' operations." ■



'Stabilizing all solid-bearing journal-box assemblies would raise hotbox set-out rate to over 2,000,000 miles.'

How to improve the hotbox situation

Changes in solid-bearing journal boxes would double hotbox mileage. Good lubricators and servicing would add to performance.

By M. A. Hanson
Chief Engineer
Magnus Metal Corporation

A national average of over 1,000,000 miles per hotbox set-out was achieved for the first time in 1963. An average of over 2,000,000 miles could be reached quickly. The 2,000,000-mile goal would be attained if all railroads, private car lines and car builders adopted a program with respect to solid bearings that included several known factors contributing to improved hotbox performance on several railroads.

The major elements in such a program, to be discussed in detail below, would include:

- Providing journal stabilization.
- Purchasing lubricators according to performance.
- Establishing reasonable levels of journal-box servicing and meeting all mandatory details outlined in AAR Interchange Rule 66 and the Lubrication Manual.
- Insuring that wheel shops produce journals with satisfactory qualities of finish.

It has been conservatively estimated that stabilization of all car journals would by itself raise the national hotbox set-out rate to 2,000,000 or more miles.

For the past several years substantial test installations have been made of flat-back bearings and journal stops. Approximately 5% of the freight-car fleet in the United States and Canada is equipped with stabilizing devices: journal stops, or flat back and "Hi-Hat" bearings. The performance of these bearings and well-designed journal stops, on a test basis, has been excellent, producing hotbox records several times better than those obtained from unstabilized journal boxes.

- **Frisco's early experience.** As long ago as the May 6, 1957, issue of Railway Age [p. 34], the St. Louis-San Francisco reported excellent results with journal stops on 1,650 cars after 21,700 car months of service. On home rails they operated without a hotbox. On foreign lines, nine cars received journal-box attention, but only one was reported as a "cut journal."

In the April 21, 1958, issue of Railway Age [p. 30], Wilson Car Lines reported on the service performance of 600 freight cars equipped with journal stops. Cars equipped with journal stops and lubricators got approximately 20 times the mileage per cut journal obtained from cars equipped only with lubricators.

Stabilizing methods

In the past three years, a number of railroads have made large installations of flat-back bearings and some installations of "Hi-Hat" bearings. In all instances, the service performance obtained from cars so equipped has far exceeded that obtained from unstabilized journals.

- **Low application cost.** Certain railroads favor one type of stabilization over the other. Some are heavily committed to journal stops; others lean equally to stabilization through the flat back and "Hi-Hat" designs of journal bearings. For ease of interchange handling of freight cars, and the speed with which stabilization can be accomplished, stabilization through use of a redesigned journal bearing such as the flat back or "Hi-Hat" is undoubtedly the most acceptable. A revised design of journal bearing does not require any journal-box change and can be applied on all repair tracks, or even in train yards if a suitable supply of wedges is provided. The initial investment to apply such bearings is also far less than that required to equip a fleet with journal stops of various designs.

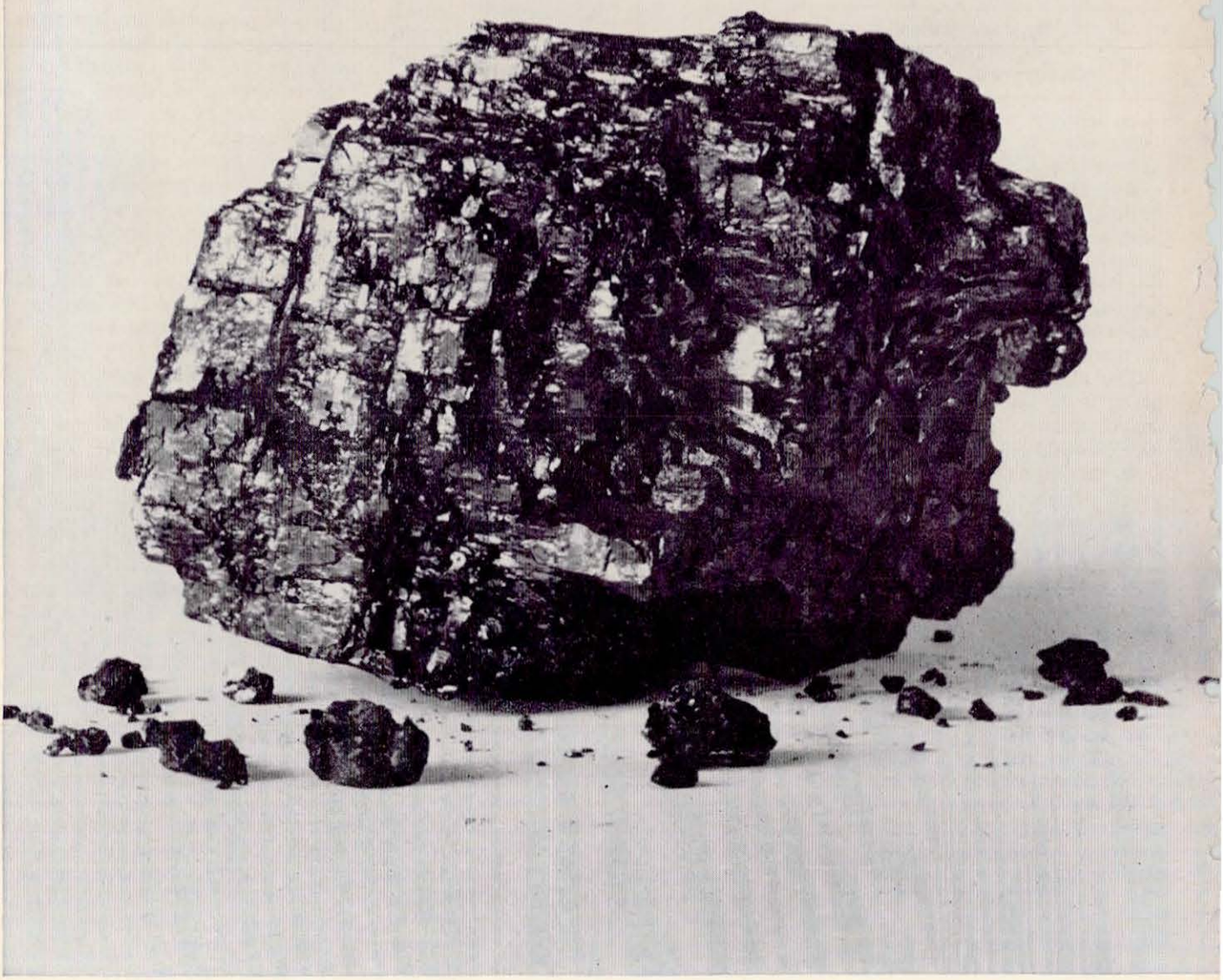
In now appears we are in a situation analogous to that of lubricators in 1957: while test data show excellent performance of journal stabilizers, an inadequate number of cars are equipped to improve over-all operation substantially.

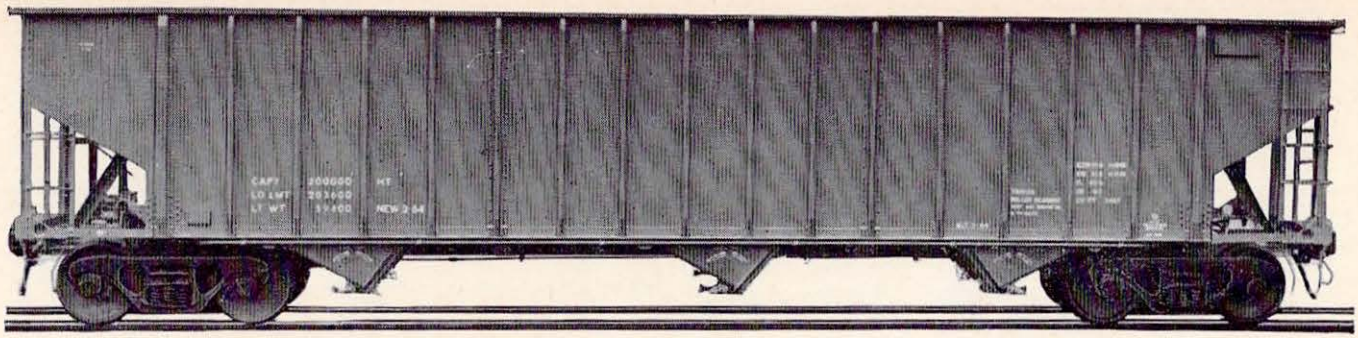
Another method by which an improvement in hotbox performance can be obtained over a relatively short period of time is through purchasing lubricators on the basis of performance rather than on the basis of price alone. The first AAR specification for lubricators required performance of 105 hotboxes or less per 54,000 car months to obtain conditional approval. Subsequently, this was reduced to a rate not to exceed 80 hotbox set-outs per 54,000 car months. After the last AAR Mechanical Division annual meeting, the limit was reduced to 65. Significantly, one million miles per hotbox set-out represents approximately 73 set-outs per 54,000 car months of service.

- **New specification.** The recently adopted specification requirement for conditional approval of lubricating devices—not more than 65 hotbox set-outs between division terminals per 54,000 car months of service—will by itself result in an improvement of about 10% over the present level of performance.

Detailed lubricator-performance statistical data is not available to the railroad supply industry. However, manufacturers of the various lubricators are given detailed performance records of the lubricators they manufacture. At least one lubricator, of which I have personal knowledge and which is used quite extensively, has a performance of

FOR COAL HAULING NOTHING BEAT THE PS-3





New 100-ton P-S coal car—combines new design and capacity features with proved PS-3 construction.

UNTIL NOW!

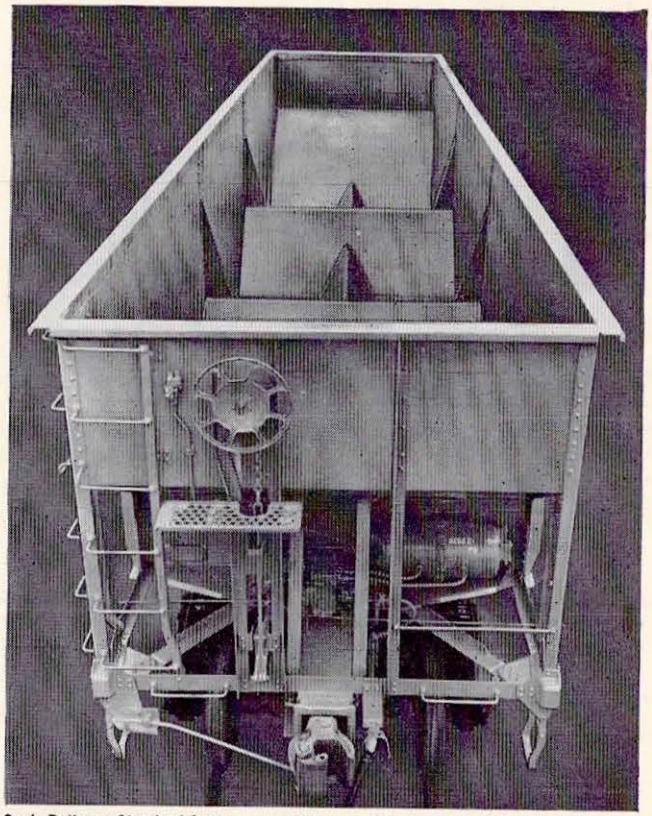
Remember the PS-3 Open Top Hopper Cars? Over 15,000 of these standardized 50 and 70-ton work horses have been put into coal hauling service since 1948. During the intervening years you haven't heard much about them. And, why should you? They've been doing the job they were designed to do, quietly and efficiently. As the standard of the coal hauling fleets they couldn't be beat . . . until now.

Keeping pace with railroad and shipper operating advances, Pullman-Standard has given its proved standardized design hopper car new, larger capacities, new hauling versatility and new features to meet changing operating requirements.

The new P-S Open Top Hoppers are being built in 80 and 100-ton capacities in both conventional and special designs. Materials are high strength steels assembled by P-S submerged arc welding . . . a combination that insures long service life and reduced maintenance. There are standard or rotary couplers, embossed side sheets, smooth hopper interiors with radiused corners and heat-circulating center sill design, to mention only a few of the features. Buyers can specify conventional or automatic gates. Some purchasers are having six pairs of gates applied to 100-ton cars. These twelve gates, combined with steep-angle floor sheets, make an important contribution to fast unloading.

About acceptance . . . More than 3000 of these new, high capacity open top hoppers are currently being produced in Pullman-Standard shops.

For more information on P-S coal cars contact George L. Green, Vice President, Marketing. He can help you with standard or specialized coal car designs—your design or ours.



Such Pullman-Standard features as solid cross-ridge braces, reinforced corners and embossed side sheets help P-S built hoppers resist the hard knocks of coal hauling.

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under 30 hotbox set-outs and currently is operating over 2,000,000 miles per hotbox set-out.

AAR lubricator performance figures are available to responsible railroad officers upon request. A potential for substantial improvement exists through the wise selection of lubricators, based on performance.

A certain percentage of the freight-car fleet can be assumed to be operating with cars equipped with lubricators from which approval has been withdrawn. AAR approval is withdrawn only because the performance of a lubricator has not met the current AAR specification requirement.

A recent review of hotbox data on three major railroads indicated that approximately 30% of the hotboxes for the past six months occurred on cars equipped with one type of lubricator from which approval has been withdrawn. A spot check on the three railroads indicated that less than 10% of the cars operating on them were equipped with this lubricator. Thus, this one sub-standard lubricator was producing at least three times the average number of hotboxes.

The cure for such a situation is obvious. Remove such lubricators from service by giving periodic attention to the journal boxes of the cars involved as soon as possible.

Hotbox statistics from one railroad can not, in all fairness, be directly compared with hotbox statistics from another railroad. This is so because operating and reporting practices vary.

However, reviewing improvement in performance on a given railroad from year to year is believed to be a valid comparison. Here, too, we find wide variations. Some railroads have improved their performance over the past few years by as much as 10 to 1—others to a substantially lesser degree. For example, the Gulf, Mobile & Ohio stated in its 1963 annual report that hotbox set-outs between terminals in 1963 were 303, down from an average of 3,558 hotbox set-outs per year for the three-year period 1957-1959. This is an 11.7 to 1 improvement. The average for all railroads, as indicated above, has been approximately 5.7 to 1.

The two remaining factors, to some extent, explain the variation in improvement in hotbox performance from railroad to railroad. One factor is the degree of observance of AAR Interchange Rule 66 and Lubrication Manual; the other is the quality of journal finish.

● **Education is important.** Many railroads are careful in educating their supervision and workmen with the requirements of Interchange Rule 66 and the AAR Lubrication Manual. Some are not as strict in their observance of such matters. The mandatory rules outlined in Interchange Rule 66 and the Lubrication Manual, developed over the years, are based on sound experience. Any repair track crew which sees fit to slight or ignore the mandatory sections of these rules will impair the service performance which is available from solid bearing assemblies.

There is a wide variation in the quality of journal finish. Unfortunately, proper finishing of journals is still an art rather than a science. Some recent research has been done on journal finishes, using new surface measuring devices which not only measure the height of the irregularities of a journal but which also are capable of measuring the waviness of journals. In many cases, finished journals fail due to faulty machining which can not be corrected in the rolling process.

Improper journal finish most frequently shows up as a source of trouble in either new cars or in rebuilding programs The waviness of a journal is usually detected easily after the journal has been placed in service. An examination of the journals at that time will show bright areas at the high spots and a darker surface between the bright spots. Notation of such a condition should immediately result in a careful review of journal-finishing practices. ■

Lubricator experience: a future guide

As early as 1958, W. M. Keller, vice president, Research Department, Association of American Railroads, publicly stated that 1,000,000 miles per hotbox set-out could be achieved. At the time the statement was made, few people in the railroad industry thought such a prediction was justified.

AAR hotbox statistics released March 9, 1964, disclosed that during 1963 a total of 31,088 hotbox set-outs occurred between division terminals. With total freight-car mileage last year of 31,588,344,032, an average of 1,016,094 miles per hotbox set-out was achieved.

In 1959, mathematical calculations developed by one AAR Mechanical Division Lubrication Committee member projected that such a mileage could be expected if all freight cars were equipped with lubricating devices. Tabulated below is this projection, as included in an address by Wayne Laskey, engineer of tests, Gulf, Mobile & Ohio, on Jan. 21, 1964, before the Car Department Officers Association of St. Louis.

The factual basis for such a projection was as follows:

In 1952, when all solid-bearing cars were operating with waste packing, there were approximately 180,000 hotboxes. Based on 31 billion car miles then being accumulated annually, there was one hotbox set-out per 172,222 miles. During 1959, when the tabulated estimate was prepared, hotbox records indicated an improvement, with lubricators, of 5.7 to 1 over waste packing. Thus, when all cars were equipped with lubricators, approximately one million miles per hotbox set-out should result. The accuracy of this projection is almost unbelievable based on the actual results obtained in 1963, when all cars were essentially so equipped.

Review of this early estimate also clearly demonstrates that an application of any device to a small number of cars does not markedly affect over-all performance. The effect of a small number of applications can easily be lost, since it does not reflect any more than the fluctuation which normally may occur from year to year. The great improvement in performance shows up after 75% of the fleet has been equipped with the device.

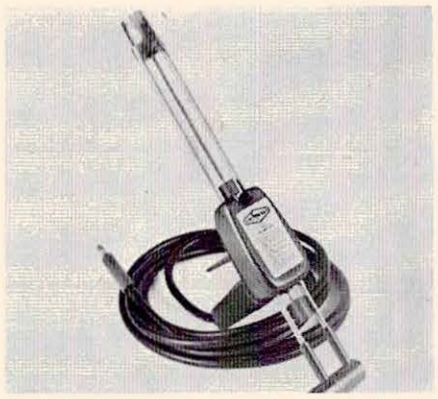
EARLY ESTIMATE OF LUBRICATOR IMPACT

WASTE EQUIPPED CARS	LUBRICATOR EQUIPPED CARS	WASTE HOT BOXES	LUBRICATOR HOT BOXES	TOTAL HOT BOXES	MILES PER SET OFF
100%	0%	180,000	0	180,000	172,222
90%	10%	162,000	3,100	165,100	187,765
75%	25%	135,000	7,750	142,750	217,163
50%	50%	90,000	15,500	105,500	293,839
25%	75%	45,000	23,250	68,250	454,212
10%	90%	18,000	27,900	45,900	863,509
0%	100%	0	31,000	31,000	1,000,000

NEW PRODUCTS REPORT

Cleaning Tool (RA-1)

The Whirl-Away rotary tool for cleaning flat surfaces is designed to be used on any type of electric or pneumatic power equipment having a ¼-in. chuck. The device incorporates a series of cutting heads that, according to the manufacturer, will remove rust, scale and old paint quickly and efficiently. Its light weight makes it easy to handle, eliminating operator fatigue. *C. J. Breitenstein Co.*



Spot Welding Gun (RA-2)

Uniweld 300, it is said, can spot weld two pieces of metal together without a back-up electrode. It can weld sheet metal to heavy plate, or weld two thin sheets together without distortion because of the concentration of heat in a very small area. The arc spot gun weighs 3 lb. When used with 110-220-volt Model 90 Power Pac, it can handle a range of thicknesses from 26 to 1 gauge. *Uniweld Products, Inc.*

Portable Trencher (RA-3)

The new Hoffco portable flail trencher is said to enable one man to dig a fireline trench at the same rate as three or more men with hand tools. The unit consists of a steel tubing drive-shaft housing at the top end of which is mounted a four-horsepower, single-cylinder, air-cooled engine and a shoulder-carrying harness. A coulter assembly and a six chain flail are at the lower end of the housing. *Hoffco.*

Improved Rectifier (RA-4)

New and improved model DL automatic rectifier features: (1) completely automatic operation; (2) more flexibility —will charge lead-acid, nickel-iron or nickel-cadmium batteries by simple adjustment to the number and type of cells being charged; and (3) a wider range of application—can be used on all heavy duty signal applications where load is intermittent and unpredictable, such as in crossing signals, low voltage switch machines and CTC.

These completely automatic model DL rectifiers are designed and built to give long life in charging any or all types of signal batteries. Free of fuses and resistors, they require no maintenance and are easy to operate—simply (1) set DC tap for proper battery and number of cells and (2) set AC tap to match the AC input voltage.

These units provide a gradually diminishing, high rate charge until the battery is fully charged, at which point the current automatically drops to the normal trickle rate. A "Boost-Normal" switch, standard on all models, provides a high rate for emergency charging. *Fansteel Metallurgical Corp.*

Smoke Eliminator (RA-5)

In test runs between Los Angeles and Phoenix, Ariz., the Model TE0699 turbo-charger installed on a Cummins NH 220 engine is said to have overcome objectionable truck exhaust smoke. A 10% boost in horsepower and an improvement in fuel consumption from 4.47 to 5.39 miles-per-gallon was also reported. The small turbo charger is also applicable to NH 200 engines. Normally, a special adapter plate is sufficient for installation. *Garrett Corp.*

RAILWAY AGE WEEKLY

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5/11/64

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Like some railroad air filters, this knife can do many jobs. But it wouldn't be very helpful in butchering beef or clearing a canebrake. That's why they make butcher knives and machetes.

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(Product Reference 28A)

NH freight potential: rising in '65

The New Haven's freight income has probably slipped as low as it's going to, a trustee of the bankrupt line said last week.

"But with improved equipment and service, and with the elimination of obsolete branch lines, the railroad's freight business can be made profitable if public and private authorities in a position to help or hurt the New Haven, allow it to function freely."

The road's financial plight and its hopes for recovery were recounted last week by Richard Joyce Smith, one of the federal court-appointed trustees.

"Public preference and assistance given to alternative modes of transportation have been a major cause for the decline in the New Haven's freight buisness," he told a Chamber of Commerce group in Bridgeport, Conn. "Another adverse factor is the changed character of industry in New England. Industries which in the past generated heavy railroad traffic have been moving out of the area."

He said surveys made for the road indicate that the potential for rail freight should increase by 1965 to 4.1% above the 1961 level, and by 1970 to 9.6% above the 1961 level. Freight revenues for the New Haven have dropped from a profit of $23.3 million in 1953, to a loss of $1.5 million in 1963.

Calling it the duty of the trunklines to assume full responsibility for New England rail service, Mr. Smith recalled that the New Haven intervened in the ICC proceedings relative to the Pennsylvania-New York Central merger: "We have asked that unless the New Haven is included in that merger, the proposal be rejected . . . we have frankly stated that if the Penn-Central merger goes through without us, we shall be compelled to recommend to Judge Anderson that the New Haven be liquidated."

He said southern New England "will not passively accept the status of an abandoned appendage to the rest of the country . . . all southern New England interests, public and private, should unite in urging that the authorities in Washington include New England railroads in the rearrangement of trunklines in the East which is now approaching a climax." ■

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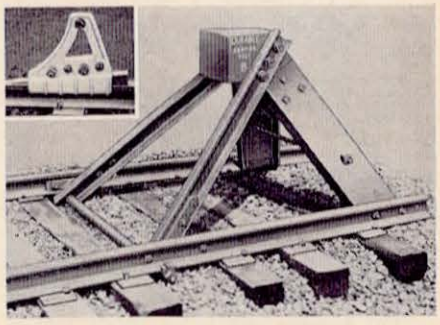

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General Signal

PEOPLE IN THE NEWS

CHICAGO GREAT WESTERN.—V. E. Vaughn, assistant to president, Oelwein, Iowa, retired March 31 after more than 50 years of service. **C. H. Thiele** named assistant to general manager, Oelwein.

ILLINOIS CENTRAL. — George Pipas, signal engineer, Chicago, appointed general superintendent communication and signals. Mr. Pipas' successor is **Robert W. Kile,** special engineer, Chicago.

C. Acree Pace named assistant freight traffic manager, Chicago, succeeding **Arthur A. Koch,** who retired April 30 after 54 years of service. **John A. Conniff, Jr.** appointed general freight agent, Atlanta, Ga., to replace **Charles R. Reynolds,** assistant freight traffic manager, who retired April 30 following 48 years' service. **Roy C. Bell** and **William H. Gray** named assistant general freight agents, St. Louis and Chicago, respectively.

Lester A. Schellenberger, general merchandise agent, Chicago, appointed manager piggyback and LCL sales. **Leonard D. Kemp,** assistant general merchandise agent, named assistant manager piggyback and LCL sales.

Herbert F. Longhelt, staff engineer, named assistant to chief engineer. **Roger E. Skinner,** engineer of design, succeeds Mr. Longhelt, and in turn is replaced by **Donald L. Nord,** chief designer in the bridge department.

SANTA FE.—John S. Reed, vice president-finance, Chicago, appointed vice president, executive department, to succeed **R. G. Rydin,** retired (RA, May 4, p. 40). **John C. Davis,** assistant to the president-staff studies, Chicago, named executive assistant-finance.

Frank J. O'Drain, assistant to the freight traffic manager, Los Angeles, named general freight agent, Chicago. **Harold G. Jones** succeeds Mr. O'Drain at Los Angeles. **Edward M. Fogarty,** general freight agent, Chicago, retired April 30.

Supply Trade

Harold A. Strickland, Jr. has joined the **General Signal Corp.,** New York, as executive vice president, a new post. Mr. Strickland also has been elected a director and member, executive committee. He was formerly vice president and general manager, Industrial Electronics Division, General Electric Co.

William F. Lowry has been appointed manager of railway and marine sales, **Aluminum Co. of America,** succeeding **J. A. Burt,** recently named manager of building industry sales. Mr. Lowry was formerly an industry assistant, consumer durables sales division.

Union Railway Equipment Co. has named **Journal Box Servicing Corp.** as its Chicago area sales representative.

James J. Welsh has been named a sales engineer, Atlanta district, Metal Products Division, **Armco Steel Corp.**

C. William Woods has been appointed project manager, **Union Switch & Signal division, WABCO.** In his newly created position, Mr. Woods will be responsible for control, administration and coordination of functions in US&S concerned with its work for the San Francisco Bay Area Rapid Transit District.

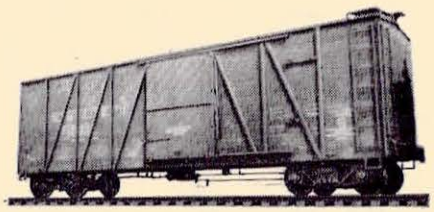
Mister Mechanic, Inc., plastic filler manufacturers, has named the following sales agents: **URE Service Co.,** Cherry Hill, N.J.; **James M. Plaskitt & Son,** Washington, D.C.; **Progress Railway Supplies, Inc.,** St. Louis, Mo., and **Transquip Corp.,** Chicago.

R. J. Picard, chairman and president of **Rhodia, Inc.,** wholly owned U.S. subsidiary of **Rhone Poulenc, S.A.,** has announced that Rhodia has completed negotiations for the purchase of all the outstanding stock of the **Chipman Chemical Co.** Chipman will retain its identity and present management and will operate as a wholly owned subsidiary of Rhodia.

Arthur E. Gustus, formerly of the **Missouri Pacific,** has joined **Fairmont Railway Motors, Inc.,** as a sales representative at St. Louis, Mo.

When it's sold in Mid-Market, U.S.A., it's shipped by Wabash Cannonball Freight Service.

WABASH RAILROAD COMPANY



"Roller Freight" was born when the Wheeling and Lake Erie Railroad (now part of the Nickel Plate Road) put the first Timken® bearing-equipped freight car into service.

1923

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Atlanta & West Point Railroad Company and Western Railway of Alabama
Atlantic Coast Line Railroad
The Baltimore and Ohio Railroad Company
Bangor and Aroostook Railroad Company
Boston & Maine Railroad
Canadian National Railways
Canadian Pacific Railway Company
Central of Georgia Railway Company
Chesapeake & Ohio Railway Company
Chicago & Eastern Illinois Railroad Company
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Chicago Great Western Railway Company
Chicago, Milwaukee, St. Paul & Pacific Railroad Company
Chicago, Rock Island & Pacific Railroad Company
Clinchfield Railroad Company
The Colorado and Southern Railway Company
Delaware & Hudson Railroad Corporation
The Denver & Rio Grande Western Railroad Company
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Detroit, Toledo & Ironton Railroad Company
Detroit & Toledo Shore Line R.R. Co.
Duluth, Missabe & Iron Range Railway Company
Elgin, Joliet and Eastern Railway Company
Erie-Lackawanna Railroad Company
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Grand Trunk Western
Great Northern Railway Company
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Illinois Central Railroad Company
Illinois Terminal R.R. Co.
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Louisville & Nashville Railroad Company
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Missouri-Illinois Railroad Company
Missouri-Kansas-Texas
Missouri Pacific Railroad Company
Monon Railroad
National Railways of Mexico
New York Central System
The New York, Chicago & St. Louis Railroad Company
The New York, New Haven & Hartford Railroad Company
Norfolk & Western Railway Company
Norfolk Southern Railway Company
Northern Pacific Railway Company
Pacific Great Eastern Railway Company
Panama Canal Company
The Pennsylvania Railroad
The Pittsburgh & Lake Erie Railroad Company
The Pittsburgh & West Virginia Railway Company
Quebec, North Shore & Labrador Railway Company
Reading Company
Richmond, Fredericksburg & Potomac Railroad Company
St. Louis-San Francisco Railway Company
Sandersville Railroad Company
Savannah & Atlanta Ry. Co.
Seaboard Air Line Railroad Company
Soo Line Railroad Company
Southern Pacific Company
Southern Railway System
Spokane, Portland and Seattle Railway Company
The Texas & Pacific Railway Company
Tidewater Southern Railway
Toledo, Peoria & Western Railroad Company
Union Pacific Railroad
Wabash Railroad Company
Western Maryland Railway Company
Western Pacific Railroad Company

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Dairy Shippers Dispatch Company
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FMC Corporation
Fruehauf
Fruit Growers Express Company
General American Transportation Corporation
General Chemical Division
General Electric Company
Halliburton Company
Iron Ore Company of Canada
Kaiser Aluminum & Chemical Corporation
Keith Railway Equipment Company
Kennecott Wire & Cable Company
Linde Company
Marine Industries
Merchants Despatch Transportation Corporation
Mine Safety Appliances Company
Monsanto Chemical Company
North American Car Corporation
Pacific Fruit Express Company
Pennsylvania Power & Light Co.
Petroleos Mexicanos
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Southern California Edison Company
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Union Tank Car Company
U. S. Air Force
U. S. Army
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U. S. Navy
U. S. Railway Equipment Company
United States Steel Corporation
Western Fruit Express Company
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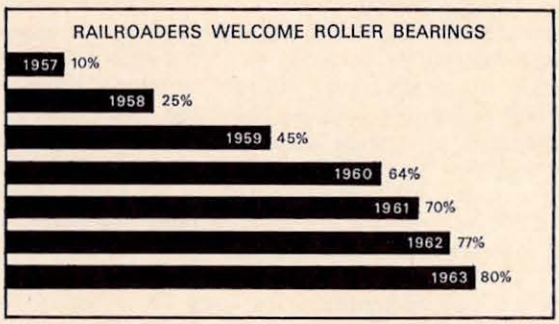

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1964

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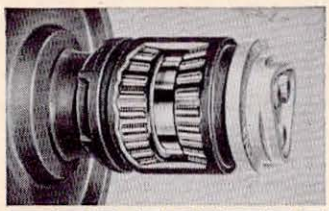

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QUALITY TURNS ON HEAVY DUTY TIMKEN® TAPERED ROLLER BEARINGS

Auditors move to halt 'great train robbery'

Fraud and embezzlement on U.S. railroads is riskier than ever, now that sampling techniques and computers are being used.

How do you spot an embezzler? How do you put your finger on fraud?

Embezzlers, say railroad accounting officers, come in all ages and sizes—from new employees to respectable grandfathers. And fraud can be accomplished in a million different ways—some of which are difficult and expensive to detect. While estimates of the cost of embezzlement and fraud to American business range up to a billion dollars every year, no one really knows the true figure. Managements—especially railroads—are reluctant to advertise many of their losses.

● **New techniques help.** More than 130 top railroad accountants at the Association of American Railroads Accounting Division seminar on internal auditing at Chicago recently heard experts discuss a few of the new wrinkles in their work that are making this sort of speculation riskier than ever before. New sampling techniques and the ubiquitous computers are giving accountants important new tools in the fight to stamp out fraud and embezzlement on U.S. railroads.

Some of the embezzlement and fraud techniques that auditors have discovered in the past included:

— Withholding by an employee at a small agency of waybills, LCL bills and other small items over a 1½-year period. Investigation by a traveling auditor revealed that charges had been collected, checks cashed and the funds used by the agent for personal needs. Detecting the fraud was difficult because the charges were all small and some foreign lines do not trace LCL waybills for small amounts. The railroad involved has since inaugurated a simple accounting-control program to catch similar actions in the future.

—A completely fictitious shipment, loss and subsequent claim on an air-conditioner almost succeeded. But, the FBI got into the case and the guilty agent (a 27-year employee) was convicted and sentenced to 18 months in a federal penitentiary. "You'd be surprised how many lost items began showing up on that division," noted an accounting officer of the railroad involved.

— Another case reported was an 8½-year embezzlement of funds from a railroad's customer by an agent. The customer, a creamery having many small shipments, overpaid $34,505.85 to the agent, who collected payment on the basis of an adding-machine tape total. The creamery, which never bothered to total up the amounts of its waybills, uncovered the fraud when it began analyzing the effect of a rate increase on its business. Said the railway accounting officer, "There was no way we could have detected this malpractice because the railroad's accounts were perfectly kept."

— Ticket agents selling blank tickets and filling in intermediate points but collecting full-distance fares were discovered by an eastern road. Checks were installed against similar fraud after six agents were fired.

— Ticket sellers and conductors were fired by an eastern road when it was discovered the conductors were failing to punch tickets and returning them to the ticket sellers, who in turn treated them as redemptions and then split the proceeds with the conductors.

— Fraud involving improper overtime payments to employees of an agency were detected by an alert auditor who overheard a clerk telling about a TV program that was aired at midnight the night before and noted that the clerk had, according to payroll records, worked until 2 a.m. that night. A difficulty with problems of this sort is that unless the carrier brings charges within a certain number of days the man is exonerated because of union contract stipulations.

Value of sampling

C. T. Richardson, traveling auditor for Southern at Atlanta, Ga., told the accountants at the seminar how Southern has adopted sampling techniques to keep up with an increasing volume of work at fewer and fewer points.

● **Advantages of sampling.** Mr. Richardson described Southern's sampling technique as superior to former methods because of timeliness, economy and, perhaps surprisingly, accuracy.

With the trend toward concentrated agency work—and subsequent concentration of records—Southern's sampling audit of agency records provides results quicker because auditors can examine fewer items in more depth.

Statistical sampling, obviously, is cheaper than traditional auditing procedures—and enables Southern's auditing forces to concentrate efforts where an indication of manipulation or a higher-than-permissible level of major and minor error shows up in a sampling audit.

Results, noted Mr. Richardson, are often more accurate than traditional audits because the item-by-item check that is possible with a small sample frequently reveals the manipulated deviations that fail to show up in large, complete audits. Auditors, buried in a mass of data and documents, are apt to overlook some irregularities if books balance.

● **More detailed information.** Oddly enough, sampling techniques enable Southern's auditors to obtain, process and analyze more detailed data that can be obtained through a complete audit of any complete group of records. "The larger the sample," noted Mr. Richardson, "the more cursory the examination is apt to be."

By using a predetermined set of permissible factors in the statistical sampling audits, Southern's auditors are able to quickly set up audits on an irregular basis. Judgment samples—the examination of a period's transactions—are useful, Southern feels, for obtaining data for certain kinds of decisions but are not a favored sampling technique.

● **Prefer pattern sampling.** By selecting every "nth" item from whatever records are being checked, Southern's auditors can guard against certain patterns, errors and manipulations with needle-sharp accuracy.

This statistical sampling is better than judgment sampling, noted Mr. Richardson, because audit performance "decreases in quality as the volume of paper work increases." Interpretation of the audit is stated in three levels of errors—manipulation, major and minor errors. No degree of error is allowable in the area of manipulation—and the discovery of one more error than is permissible by Southern's established standards indicates an unsatisfactory condition. Southern, said Mr. Richardson, is using statistical sampling plans for all major field audit features.

● **New tools for auditing.** J. F. Herska, supervisor of station audits, New York Central, described some of the accounting hardware that his road is using to achieve better utilization of NYC's audit staff. The use of mechanized accounting techniques was described as a must as the road's agencies continue to be consolidated. NYC's 2,400 separate agencies of just a few years ago have been concentrated to about 300—and may, in time to come, be consolidated to twelve or even fewer agencies.

MARKET OUTLOOK

Carloadings slip

Loadings of revenue freight in the week ended May 2 totaled 567,743 cars, the Association of American Railroads announced on May 7. This was a decrease of 4,228 cars, or 0.7%, compared with the previous week; a decrease of 23,467 cars, or 4.0%, compared with the corresponding week last year; and a decrease of 19,670 cars, or 3.3%, compared with the equivalent 1962 week. Ton-miles generated by carloadings in the week ended May 2 are estimated at 12.5 billion, a decrease of 0.7% below the corresponding week of 1963, and an increase of 5.1% over the 1962 week.

REVENUE FREIGHT CARLOADINGS

For the week ended Saturday, May 2

District	1964	1963	1962
Eastern	82,549	83,377	82,469
Allegheny	101,483	101,172	96,535
Pocahontas	54,203	56,732	51,643
Southern	105,420	116,596	115,952
Northwestern	75,476	77,479	84,538
Central Western	111,356	115,291	116,319
Southwestern	37,256	40,563	39,957
Total Western Districts	224,088	233,333	240,814
Total All Roads	567,743	591,210	587,413
Commodities:			
Grain and grain products	44,085	51,415	50,939
Livestock	2,427	4,446	4,560
Coal	105,913	109,735	101,394
Coke	8,744	9,064	7,357
Forest Products	35,754	36,984	38,688
Ore	45,685	37,469	45,680
Merchandise l.c.l.	12,892	18,146	23,881
Miscellaneous	312,243	323,951	314,914
May 2	567,743	591,210	587,413
Apr. 25	571,971	577,024	577,865
Apr. 18	581,127	561,261	569,493
Apr. 11	529,618	556,081	554,866
Apr. 4	519,494	546,021	547,674
Cumulative total, 18 weeks	9,564,361	9,430,709	9,739,373
Estimated Revenue Ton Miles (millions) 18 weeks	215,900	204,900	201,600

PIGGYBACK CARLOADINGS.—U. S. piggyback loadings for the week ended Apr. 25 totaled 16,933 cars, compared with 15,624 for the corresponding 1963 week. Loadings for 1964 up to Apr. 25 totaled 272,066 cars, compared with 248,866 for the corresponding period of 1963.

IN CANADA.—Canadian carloadings for the seven-day period ended April 21 were not available as this issue went to press.

FREIGHT-TRAIN CARS

► *Baltimore & Ohio.*—Ordered 60 70-ton hopper cars from General American, at a cost of about $810,000.

► *Union Pacific.*—Ordered 200 52½-ft, 70-ton, fixed-end solid bottom gondolas from Bethlehem Steel for delivery beginning in late August; and 200 3,700-cu-ft-capacity, 90-ton Center Flow covered hopper cars from ACF for delivery beginning in September. All cars will be equipped with roller-bearing trucks.

► *Bad Order Ratio 2.0% Lower Than Last Year.*—Class I roads on April 1 owned 1,504,928 freight cars, 37,928 less than on April 1, 1963, according to AAR report summarized below. Bad Order Ratio was 2.0% lower than on April 1, 1963.

	April 1, 1964	April 1, 1963	Change
Car Ownership	1,504,928	1,542,856	—37,928
Waiting repairs	95,066	128,690	—33,624
Repair ratio	6.3%	8.3%	— 2.0%

FOREIGN

► *National Railways of Mexico.*—Placed orders for 80 diesel-electric locomotives—50 from General Motors Overseas and 30 from Alco. The General Motors order, valued at $9.5 million, calls for delivery of 30 GP-35 units, 10 G-12 units and 10 GA-8 units. Alco will supply 30 2,400-hp, Century 424 units at a cost of $7 million. The acquisition is being financed through a $26 million Alliance for Progress credit granted to Mexico by the Export-Import Bank of Washington. Equipment and machinery for other railway departments will also be purchased in the U.S.

NEW FACILITIES

► *Chicago & North Western.*—Will spend $1.3 million on improvements to its ore dock at Escanaba, Mich., to permit the facility to handle the largest ore boats now operating on the Great Lakes. Sheet steel piling will be driven into the lake bottom along the sides of the dock.

► *Louisville & Nashville.*—Will construct a passenger station at Biloxi, Miss., at an estimated cost of $112,225; repair and modernize bridges at seven points at an estimated total cost of $495,223; construct a piggyback facility at Leewood Yards, Tenn., at an estimated cost of $84,000, and construct a $225,000 automobile handling facility at Radnor, Tenn.

► *Texas & Pacific.*—Will replace 11 miles of 110-lb rail with new, 119-lb welded rail on its south main line between Dallas and Fort Worth, Tex., at a cost of $467,000.

► *Western Pacific.*—Will spend $235,000 to complete Phase II of a three-year program to renew 7,614 feet of main line and paving in Oakland, Calif. Company forces will replace 14.22 track miles of 112-lb rail with 136-lb, continuous-welded rail in main track between Halleck and Alazon, Nev., at an estimated cost of $932,000, and construct two concrete retaining buttress walls at Pulga, Calif., at an estimated cost of $147,000. Tunnel #38 near Cluro, Nev., will be daylighted at a total cost of $346,000. Contractors will replace wooden gallows frame, footing and lifting mechanism at Oakland Mole, Calif. with new steel frame on concrete foundation and electric lifting mechanism at a total cost of $96,000.

YOU OUGHT TO KNOW

U. S. Chamber policy altered: The general transportation policy statement of the Chamber of Commerce of the United States was revised at the chamber's annual spring meeting to add a call for protection against strikes. The policy says: "It is necessary that all modes, particularly the essential common carriers, operate under laws, regulations, and policies which provide for and foster a healthy business climate and competitive opportunities which will conserve the advantages of each for the public good; and, that such laws, regulations and policies assure adequate public protection against interruptions in transportation which impede the supply of products or services affecting the safety, health and welfare of the people."

New investment for SP: Newest diversification move for Southern Pacific is its acquisition of Bankers Leasing Corp., Boston-based lessor of automotive equipment, rail cars, data processing systems and other kinds of industrial equipment. SP said the move was made for investment purposes. Bankers will continue to operate under its present management, with SP representation on the board of directors.

Paying for spoilage: Carriers are liable for spoilage in transit of perishable commodities unless they can prove that the sole cause of the spoilage was the natural tendency of the commodities to deteriorate. Proof that natural deterioration was involved is not enough. The U.S. Supreme Court so ruled in Missouri Pacific v. Elmore and Stahl, a case involving a shipment of honeydew melons from Rio Grande City, Tex. to Chicago.

Another unit train for PRR: By early 1965, Pennsylvania should have an additional unit-train operation going—from a mine owned by North American Coal Corp. near Johnstown, Pa. North American plans to increase the mine's production to one million tons per year, construct a preparation plant and install loading facilities capable of transferring coal into hopper cars at a rate of 8,000 tons in four hours.

Twelve new sleeping cars for the 'Super Chief': Fresh from Pullman Company shops in Chicago, 12 11-bedroom sleeping cars—completely rebuilt from the frame up—are going into service on Santa Fe's "Super Chief." First run for the new cars was May 10; two cars will be in the train's consist each day.

BARTD bids open: Bids were invited last week on the $1.5 million contract for earthwork and structures on the Bay Area Rapid Transit District's 4½-mile test track in Contra Costa County, Calif. The contract for Phase I of the test track is the first of over 75 major contracts that BARTD will let for construction of the project.

Easier auto unloading: Norfolk & Western is increasing auto unloading facilities at its Winston-Salem, N.C. distribution point, to meet an expected 50% rise by midsummer in auto-rack car traffic. From 69 such carloads delivered by the N&W to Winston-Salem in 1960, the figure rose to 4,766 in 1963, and present plans call for a third distribution center to be added along N&W tracks north of the city.

Industrial engineers organize: The National Transportation Division of the American Institute of Industrial Engineers, open to industrial engineers of railroads and other transportation agencies, will be organized formally on May 16 during the AIIE national convention in Philadelphia. A technical program, "The Challenge in Transportation," has been scheduled for May 15 by the new group.

The rails' bright future: AAR President Daniel P. Loomis took the occasion of National Transportation Week to list the railroads' "impressive credentials for their claim to a bright future." He noted the ending of the work rules dispute on an "optimistic note"; the $18-billion postwar capital improvement program that is helping to build the super-railroad system of tomorrow; and increasing government recognition of the fairness of rail claims in the areas of rate regulation, taxation and mergers.

Current statistics

Net income, estimated	
12 mos., 1963	$651,000,000
12 mos., 1962	572,000,000
Carloadings, revenue freight	
18 wks., 1964	9,564,361
18 wks., 1963	9,430,709
Freight cars on order	
Apr. 1, 1964	36,919
Apr. 1, 1963	20,970
Freight cars delivered	
3 mos., 1964	17,300
3 mos., 1963	9,545
Serviceable cars	
Mar. 1, 1964	1,411,426
Mar. 1, 1963	1,416,368

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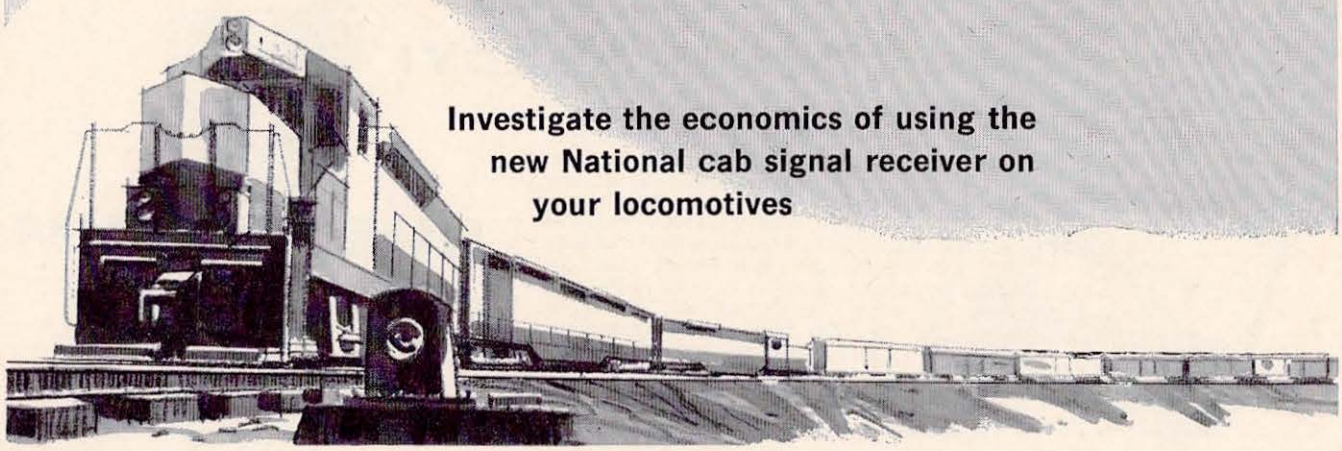


Shipper goals: are railroads nearer?

Problems of quality control, physical distribution were pointed up by RSMA speakers.

Transportation quality control programs are adding a new precision to industrial shipping decisions—and upsetting many traditionally held views of shippers and railroad men alike.

Shippers are after what Commonwealth Edison Vice President W. B. Behnke termed "the golden balance between minimum costs and maximum quality of product and service." They are increasingly measuring transportation quality against the entire spectrum of inventory, production, packaging and handling costs—and coming up with decisions that reflect detailed, painstaking cost analysis. Railroads, on the other hand, are becoming aware that low quality service is not necessarily economic service—and are stepping-up their efforts to improve transportation quality.

Experts at the Railway Systems & Management Association seminar on Quality Control in Rail Transportation at Chicago tended to agree that the quality control programs will have an immense effect on the nation's huge (one estimate: $47.5 billion) physical distribution bill. Noted Michigan State University Professor of Marketing Edward W. Smykay, "Of all the costs of doing business, the most neglected until recent times have been those associated with physical distribution."

R. S. Hamilton, Southern's vice president in charge of marketing and research, defined his road's approach to quality transportation management as: "Simply the exercise of managerial initiative and efficiency to furnish our product—freight transportation—in competitive styles and sizes that customers can use at prices they can afford to pay, with transportation cost savings for them and profits to us."

He noted that railroads, in the midst of programs to regain traffic, have relied on "guesswork and customer proposals in pricing" rather than market analysis and cost studies to determine rate profitability.

"We have too long avoided the determination through research where our markets are, the sorts and kinds of railroad service to be sold in these markets and the prices we must set or achieve in order to control or share in the markets," said Mr. Hamilton. "Too many of us have fallen for the old bromide that the customer is always right and for its companion placebo that the customer knows what he wants —and that it's up to us to give it to him. These are true only to the extent that it can probably safely be said that the customer generally wants what's best for him."

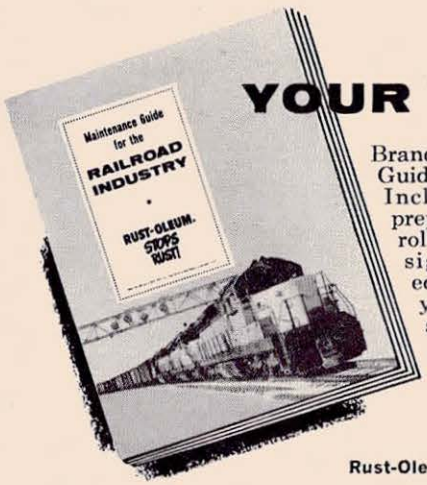
Mr. Hamilton cited integral trains, volume rates, high-cube usage rates and other developments produced by sound research as productive of quality rail transportation—and pointed out that railroads need to be quality conscious over a much wider range of services than they are now exploiting.

"How well and efficiently do we perform as an industry?" He asked the RSMA audience. "The answer is a scandal in and out of the industry. While we brag mightily, for example, of freight trains running on schedules to match or better fast passenger trains between terminals, freight customers of the railroads—as a whole—are fortunate if the loading dock to receiving dock transit times exceed five or six miles an hour. We manage to lose some loaded freight cars for days, we misdirect them and do so many other things wrong at times that we give every appearance of trying to drive business away. Our lack of true efficiency is reflected in how poorly we use our enormous investment in freight-hauling vehicles. The under-utilization of our car fleet revealed in any study of dock-to-dock service times is unconscionable in today's economy."

Mr. Hamilton's point? "There is no correlation in railroading between low quality and low costs. Poor quality is almost invariably reflected in high costs." He pointed out to the RSMA audience that a five per cent speedup in dock-to-dock transit times would produce higher quality rail service, but mean something "very spectacular" in the cost of rail operations. Action of this kind, said Mr. Hamilton, will enable railroads to put out a better product for a better price.

Day-by-day, absolute control of quality—and the costs involved in providing that service is necessary to convert the economies of rail transportation into a competitive and profitable price and service structure. Hindering such control, in Mr. Hamilton's view, are:

- Inaccurate and incomplete basic statistical information.
- Inadequate standards of training for employees, supervisors and top management.
- A tendency to compete indiscriminately for traffic best left to other modes of transportation. This kind of traffic, noted Mr. Hamilton, "is best left alone until such time as improved technology or innovation make it possible for railroads to compete on a sound and profitable basis." ■



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Transportation Week... why?

Does the public understand how vitally important efficient transportation service is, and why it costs more than it should?

The current week, May 10-16, has been designated as National Transportation Week; and the Associated Traffic Clubs have made comprehensive plans for appropriate observance by their local chapters throughout the country. There will be essay contests for high school students, a lot of public speaking, and sex appeal will show its pretty face in the form of a contest to choose "Miss Transportation."

Is there anything to such a celebration as this except a lot of pleasant publicity? There certainly could and should be.

It is a fact that transportation is a far more extensive and expensive activity than most people (including most transportation people) realize. The pamphlet "Transportation Facts and Trends," recently published by the Transportation Association of America, contains this significant observation:

"Approximately 20% of our total annual expenditures for goods and services, or our Gross National Product, is made either directly or indirectly for transportation of one kind or another. In 1962, this amounted to $112 billion."

If celebrants of National Transportation Week, in their varied messages to the public, could adequately arouse general awareness of the magnitude of this nation's outlays for transportation—the effort would be well repaid. The average family just does not appreciate how large a part of its budget is being spent for transportation, because so much of the expenditure is indirect—unknown to the payer. For example, the huge federal expenditures for navigation are not paid for by the users of the facilities. They are paid from taxes on the incomes of individuals and businesses—including individuals and businesses with no desire at all for waterway transportation service.

The government's huge property investment in highway facilities—certainly in excess of $100 billion—yields no property taxes. Taxes on railroad fixed property are a little under $200 million. If highway property were taxed proportionately as railroad plant is taxed, it would probably be paying close to $1 billion each year toward the general expenses of government. Government services such as schools, police, courts, fire protection have to be supported. Highway property escapes any levy for this purpose. The result is that owners of private property have to pay added taxes to make up for the absence of taxation on highway property.

This is just another item in the nation's transportation bill that most citizens are not aware of.

All over the country, main highways are being relocated—to avoid grades and congestion and to make highway transportation faster and less expensive for the direct users. Many of the older highways that are being, in effect, abandoned are lined with restaurants, inns, garages and retail stores that are being put out of business. Not only are their owners suffering ruinous losses, but assessed valuations for local taxing purposes are being decimated. Here is another of the hidden costs of improved transportation plant that are not often recognized as such.

Total governmental expenditures on transportation plant are now running over $15 billion annually—while privately financed outlays for the same purpose by railroads are averaging only around $200-$300 million (some years less). The result is that highway, waterway and airport facilities are being expanded and improved at a fantastic rate. Railroad replacements and improvements are proceeding on a much more modest scale.

In sum—there has developed an acute distortion in capital expenditures on transportation plant in this country, with over-stimulation of facilities that are financed from taxation; and corresponding anemia in the privately financed sector.

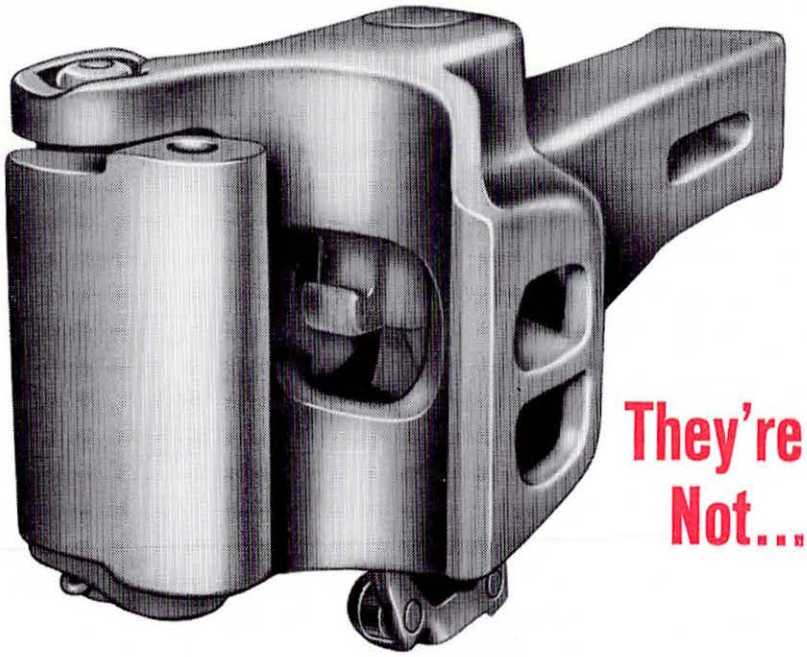
Billions in wasteful expenditure

Unequal treatment of the various modes of transportation does not stop with inequality in taxation and capital supply, but is extended also to regulation. The House Rules Committee a couple of weeks ago turned down H.R. 9903, sponsored by the Administration, which would have gone at least a few steps toward more equitable regulation. As Ernest W. Williams, Jr., and David W. Bluestone wrote in a 1960 Commerce Department pamphlet ("Rationale of Federal Transportation Policy"):

"There is no great room for doubt that, were all traffic distributed in accordance with the true comparative advantage of the several forms of transport, the annual transport bill would be reduced by several billions of dollars on freight alone. Nor is there much room for doubt that the distribution of investment funds would be considerably altered under such circumstances and would run to a lesser annual total."

If the Associated Traffic Clubs can, through the medium of National Transportation Week, impress on the American public the vital importance of the transportation function (and also how much of its huge cost is wasteful) they will be performing an important and patriotic service.

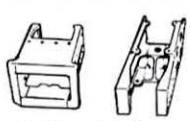
Some People Think All Couplers are Alike...



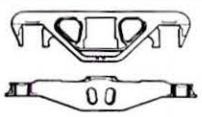
They're Not...

Symington Couplers ARE BETTER

Granted, a Type E, F, or H coupler is basically a Type E, F, or H coupler—the designs have been agreed upon. What makes Symington couplers last longer and perform better is the step-by-step extra care we take in the manufacturing process. Every component of every coupler is checked for metallurgy and dimensional accuracy from the casting stage, through to finished assembly. Because we want you to be more than satisfied, we are extremely difficult to satisfy. We take extra care because we want you to *continue* to specify Symington.



Striking Castings and Center Fillers



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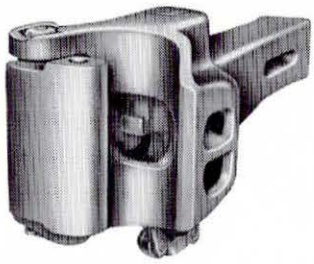
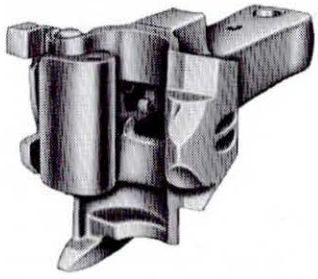
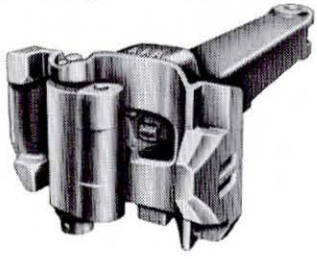


AAR STANDARD E COUPLER Safer than ever, because our production techniques have kept pace with steadily increasing drawbar pull.



AAR ALTERNATE STANDARD TYPE F INTERLOCKING COUPLER Reduced slack, increased strength. When mated with other F couplers, provides positive interlock, preventing vertical slip-overs and jackknifing.



AAR STANDARD TYPE H TIGHTLOCK COUPLER The premium coupler for passenger car use. Eliminates contour slack and provides positive engagement when coupling at slow speeds.

COUPLER REPAIR PARTS Knuckles and other repair parts for all AAR couplers are manufactured by Symington with the same care. You buy *assured quality* when you buy coupler parts from Symington.

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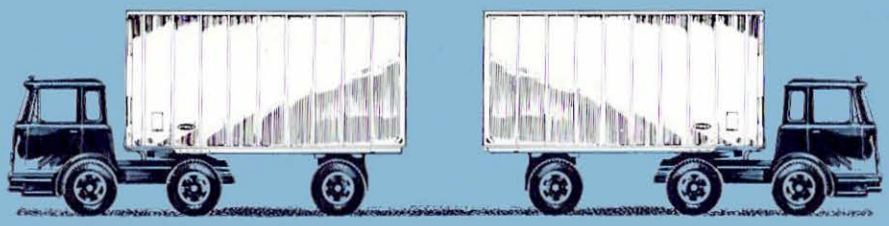
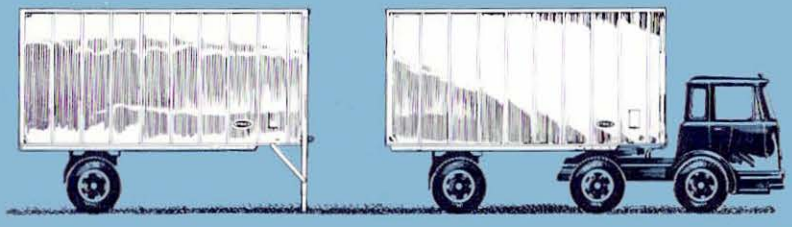
This 40-foot over-the-road Strick-Tainer...

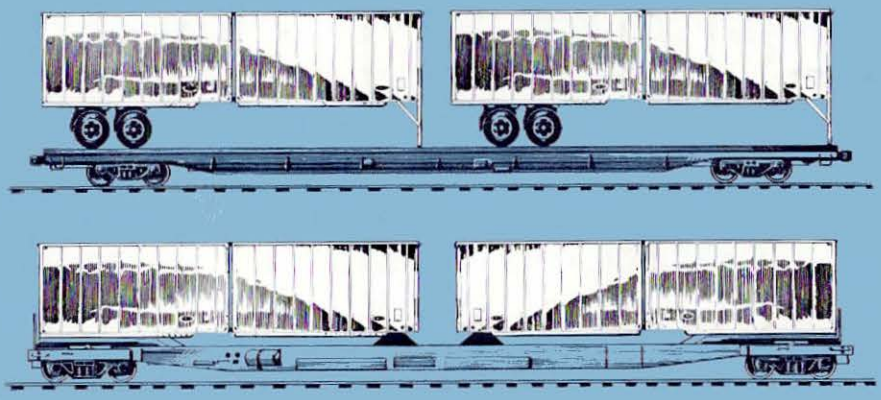
converts like this into two 20-footers for local delivery...



or like this for partial load drop-off...



and travels by railroad TOFC or Flexi-Van



and by sea too!

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Strick-Tainer is one of the most versatile units of the Flexi-Van containerization system. As a truck-trailer it's a rugged 40-foot, over-the-road van that the driver can uncouple in less than 4 minutes, to make two 20-footers. Strick-Tainers can be piggybacked every conventional way. With the bogies removed, they can be side-loaded or unloaded on a Flexi-Van rail car with just a tractor, regardless of their position in the train. On board ship they stack on deck or in the hold. Strick Flexi-Van has opened up new areas of service and revenue for many of the nation's leading railroads. Want the facts? WRITE FOR FREE STRICK-TAINER SAVINGS COMPUTER.

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